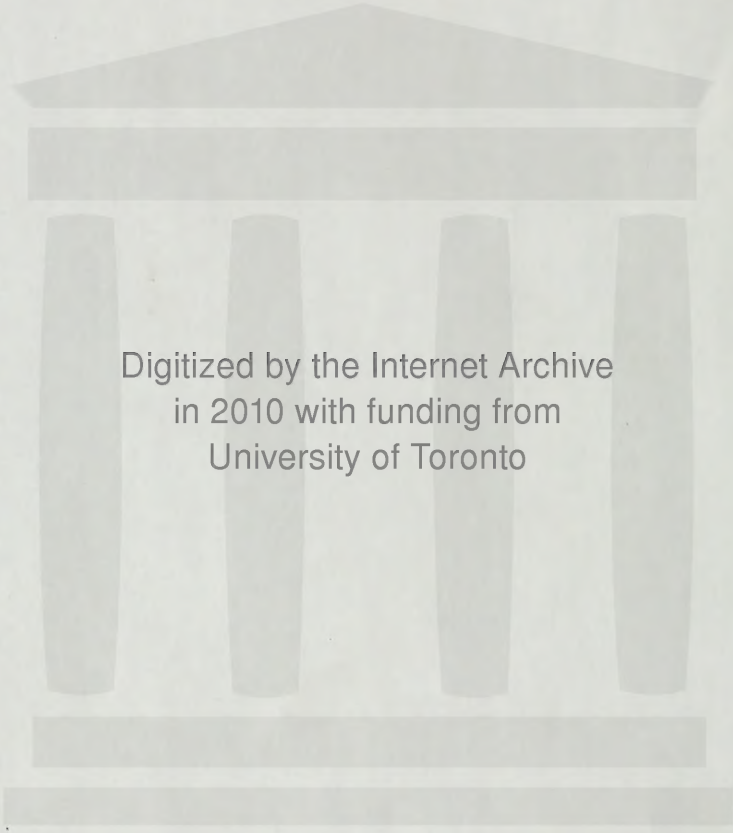
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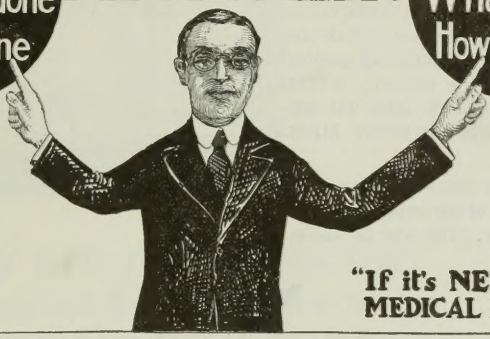

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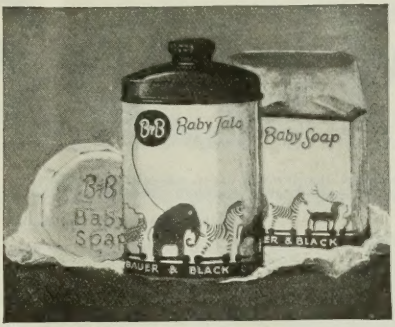

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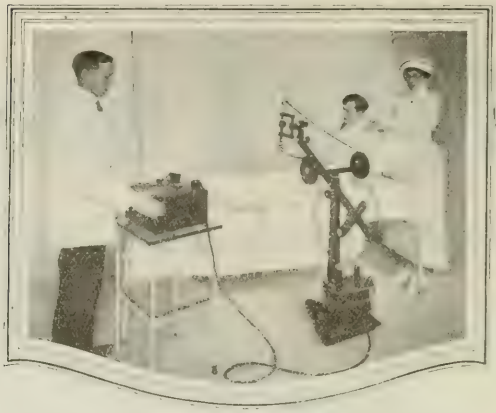

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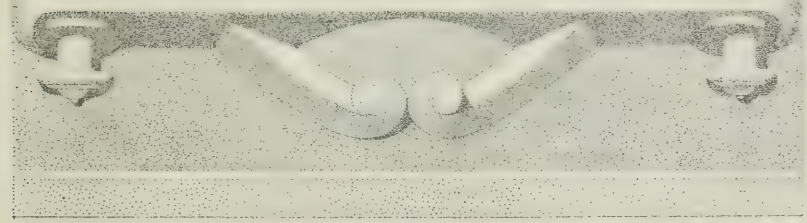

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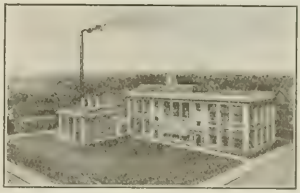

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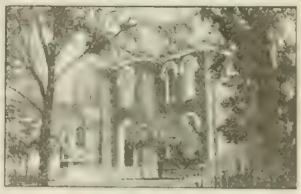

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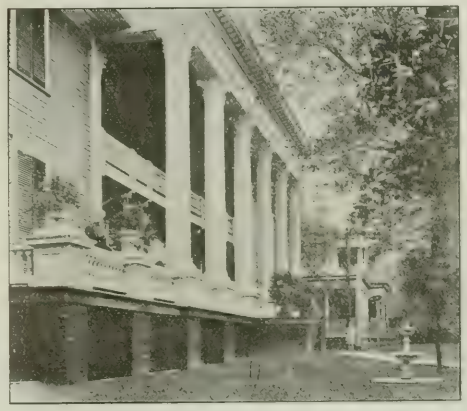

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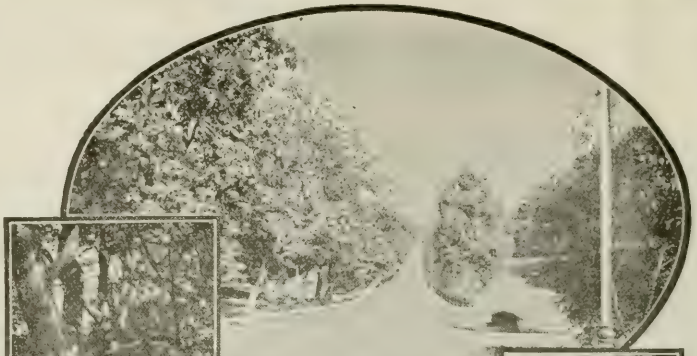

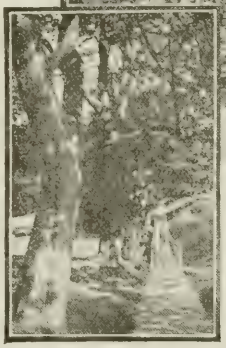

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JOURNAL OF THE SOUTHERN MEDICAL ASSOCIATION

PUBLISHED MONTHLY BY THE SOUTHERN MEDICAL ASSOCIATION AT BIRMINGHAM, ALA.

Volume XV APRIL 1922 Number 4

MEDICINE

INTERNAL DISEASES, PEDIATRICS, NEUROLOGY, DIAGNOSTIC METHODS, ETC.

A STUDY OF THE GLUCOSE TOLERANCE TEST IN THE OBESE*

BY JAMES E. PAULLIN, M.D.,
Atlanta, Ga.
and
HENRY CLIFF SAULS, M.D.,
Atlanta, Ga.

Almost two years ago, while studying the metabolism of a rather obese woman, C 1185, we gave her a glucose tolerance test thinking that perhaps this might throw additional light upon her condition. To this test she responded with a marked hyperglycemia and a decided temporary glycosuria. At that time it was thought that this patient sooner or later would develop diabetes mellitus. With this idea in mind she was advised to change her diet by reducing not only the quantity but the quality of her food according to a prescribed formula, and urged to take outdoor exercise. For a period of several months the advice was heeded, with a resultant loss of weight and great improvement in her physical condition. In about six or eight months after her first visit she developed an acute infection in the left maxillary sinus. Following this she returned to her old habits and before many months she was again the obese, complaining patient. Today she is a mild diabetic.

This incident was not forgotten; but, after the publication of Joslin's[1] article on "The Prevention of Diabetes Mellitus," in which the close relationship existing between diabetes and obesity is so clearly and forcefully brought out, it seemed that a study of the tolerance for glucose in patients markedly overweight might prove of interest and of value in helping us more effectually to warn those who show more evidence of diabetes than merely overweight.

It has been shown by Hamman and Hirschman[2], Hopkins[3], Strouse[4], Gettler and Baker[5], Cummings and Piness[6], Myers and Bailey[7], Williams and Humphreys[8], Denis and Aub[9], Bailey[10], Goto and Kuno[11], and others that following the ingestion of glucose the normal individual responds in a more or less typical manner. Within half an hour after the ingestion of the glucose there is an alimentary hyperglycemia seldom reaching more than 0.170 per cent and returning within two, or at most three hours, to the normal level of 0.07 to 0.110 per cent. Associated with this hyperglycemia there is seldom a glycosuria. The abnormal response is evidenced by a greater increase in the percentage of the blood-sugar—over 0.170 per cent—a longer time in returning to normal, and more frequently associated with a definite glycosuria. An abnormally high and prolonged hyperglycemia does not always mean that an individual has diabetes; yet it is excellent evidence that there is an interference with the normal carbohydrate metabolism which is of sufficient seriousness to demand proper remedial measures. With this idea in mind this study was begun.

We selected twenty-six cases, all showing from 10 to 80 per cent overweight. In so far as possible, patients who exhibited other conditions which might influence the study were not used, although included in this number are 6 cases with arteriosclerosis and a slight hyperten-

*Read in Section on Medicine, Southern Medical Association, Fifteenth Annual Meeting, Hot Springs, Ark., Nov. 14-17, 1921.

TABLE No. I

Case No.	Name		Age	Height	Weight	Lbs. Overweight	% Overweight	Blood Sugar After 100 G. Dextrose: Fasting	½ Hour	1 Hour	1½ Hours	2 Hours	Fasting	Urinary Examination After 100 G. Dextrose: ½ Hour	1 Hour	1½ Hours	2 Hours	Remarks
C-813	Miss R. McQ.		16	61	131	16	13.9	116	130	110	137	118	0	0	0	0	0	Urticaria
C-1160	*Miss T. D.		17	60	107	84	71.0	105	160	196	180	110	0	Faint reduction	Faint reduction	Faint trace	0	Tonsilitis, chronic
C-1175	Miss S. W.		21	68	255	115	82 1	140	210	220	220	180	0	0	Faint trace	0	0	Lues and pituitary gland
C-1361	Miss P. H.		25	62	211	87	70.0	120	143	150	143	137	0	0	0	0	0	Epilepsy
C-1462	*Mr. L. L. B.		25	71	252	70	40.0	085	167	243	172	106	0	Faint trace	0.6 %	0.5 %	0.7 %	Overweight
C- 660	*Mrs. S. L.		25	62	153	29	23 0	122	185	220	182	182	0	0	0	0	0	Psychoneurosis
C-1465	Mr. L. M.		25	67	203	56	39.0	093	129	135	120	090	0	0	0	0	0	Tonsilitis, sinusitis
C- 3971	*Mr. J. T.		30	65	195	60	44.0	125	151	187	138	117	0	0	0	0	0	Tonsilar hypertrophy
C-1352	*Mrs. C. Y.		30	65	195	60	44.0	125	151	187	138	117	0	0	0	0	0	Hyperthyroidism
C-1115	Miss G. R.		37	65	225	85	56.0	107	107	110	122	080	0	0	0	0	0	Appendicitis, chronic
C- 781	*Mr. E. C.		38	68	201	41	28.0	096	237	304	267	173	0	1.2 %	4.0 %	3.5 %	2.3 %	Arthritis, hypertension (110)
C-1411	*Mrs. A. N.		39	62	180	49	37.0	141	262	278	208	158	0	0	0	Faint	0	Mucous colitis
C-1392	*Mrs. R. C.		40	62	168	33	25 0	096	214	207	180	130	0	0	0	trace	0	Hypothyroid
C- 198	Miss M. B.		42	65	153	11	10.0	115	148	140	110		0	0	0	0	0	Hypothyroid, menopause
C-1456	*Mrs. J. C.		43	67	241	59	33.0	126	206	242	191	121	0	0	0	0	0	Thyroiditis, retinitis
C-1260	*Mrs. L. S. F.		44	64	195	45	30.0	107	123	164	143	110	0	0	0	1.0 %	1.7 %	Sclerosis, diabetic
C- 140	Mrs. M. F.		48	60	138	61	50.0	107	123	164	143	155	0	0	0	0	0 %	Hypertension, slight (154)
C-1185	*Mrs. E. H.		48	65	168	21	14.0	120	195	260	210		0	Good trace	0	Heavy trace	Mod. trace	Hypertension (160/98)
C-1362	*Mrs. A. S.		49	68	208	50	32.0	160	260	465	289	290	0	0	0.1 %	0	0	Arteriolarsclerosis (170/90)
C- 285	Mrs. J. J.		50	62	233	96	70.0	110	130	127	141	119	0	0	0	Faint trace	0	Arteriosclerosis, hypothyroid
C- 208	Mrs. H. R.		53	65	205	56	37.0	097	119	164	107	095	0	0	0	0	0	Arteriosclerosis, slight hypertension (160/90)
C-1210	Mrs. H. H.		53	67	184	21	13.0	107	125	151	107	095	0	0	0	0	0	Arteriosclerosis, chronic
C- 68	*Mr. O. E.		57	67	199	41	26.0	195	198	226	228	235	Faint trace	Heavy trace	Heavy trace	Mod. trace	Faint trace	Hypertension (158/88) prostatitis
C- 231	Mrs. L. B.		58	60	217	61	31 0	110	130	120	111		0	0	0	0	0	Arteriosclerosis, dilatation aorta
C-1040	Mrs. J. C.		59	64	244	99	68 0	127	125	139	118	107	0	0	0	0	0	Cholelithiasis
C- 146	*Mrs. E. C.		71	62	161	24	18 0	105	142	198	178	161	0	0	0	0	0	Atherosclerosis

sion. Before accepting them we determined as nearly as we could that the kidneys showed no essential damage which would influence the character of the reaction. In only one case, C 1362, did we feel that the kidney had been damaged sufficiently to influence the test; yet we did not think that there was sufficient damage to cause the response which she gave.

We also realize that practically all obese patients have at one time or another been accused of having some endocrine disorder which causes or contributes to their obesity. Perhaps with these various disorders we at times might lose sight of the secretion from the islands of Langerhans and neglect to diet and exercise these individuals in our zeal to feed them poly glandular extracts. The glucose tolerance in our cases was probably not markedly influenced by any of the "hypo" glandular inactivities.

METHODS

In this study patients were selected who showed by physical examination and laboratory tests as few abnormalities as possible that, at any rate, would influence their tolerance for sugar. Each one was given the next morning after a night's fast 100 grams of glucose dissolved in 300 c. c. of water with the added juice of one lemon. One hour afterwards each received 200 c. c. of water. Blood was obtained by venipuncture before the

administration of the glucose and every half hour afterwards for two hours. Sugar determinations were made on the whole blood by the method of Folin and Wu[12]. Specimens of urine were obtained before giving glucose, and as nearly as possible every half hour during the test. Each specimen of urine was examined for the presence of sugar, using Benedict's reagent, and if it was present the percentage was determined with the polariscope.

In determining the pounds overweight of a given patient his age, height and weight in ordinary clothes were compared with the standard for the same age, height and weight as published in the table prepared by the Association of Life Insurance Directors and Actuaries of America[13].

TABLE No. II

Age	No. Patients	No. Normal Blood Sugar Responses	No. Abnormal Blood Sugar Responses	Abnormal Responses: Males	Abnormal Responses: Females
10 to 19	2	1	1	0	1
20 to 29	5	2	3	1	2
30 to 39	5	1	4	2	2
40 to 49	7	2	5	1	4
50 to 59	6	5	1	1	0
60 to 80	1	0	1	0	1
Totals	26	11	15	5	10

SUMMARY OF CASES

Altogether by this method 26 cases have been studied and are shown in Table I. From left to right in the columns are the age of the patient, height in inches, weight in pounds, pounds overweight, per cent overweight. Following, the next five columns show the response on the part of the blood to the ingestion of glucose. The next five columns show the results of the urinalyses, and in the last column we have placed the chief clinical findings.

Table II summarizes the findings in Table I. It is interesting to note that 15, or 57.6 per cent, of these patients gave an abnormal response to the ingestion of glucose. Of the 15 cases, 9 occurred between the ages of 30 and 50 years; and 75 per cent of the cases between 30 and

TABLE No. III

Case No.	Name	Age	% Overweight	Blood Sugar After 100 G. Dextrose: Fasting	½ Hour	1 Hour	1 ½ Hours	2 Hours	Urinary Examination After 100 G. Dextrose: Fasting	½ Hour	1 Hour	1 ½ Hours	2 Hours
C- 198	Miss M B.	42	10	.115	.148	.140	.110	....	0	0	0	0	0
C-1460	*Mrs. L. C.	43	13	.126	.206	.212	.194	.121	0	0	0	0	0
C-1210	Mr. H. B.	57	13	.107	.125	.187	.136	.085	0	0	0	0	0
C- 813	Miss R. McQ.	16	13.9	.116	.130	.140	.137	.118	0	0	0	0	0
C-1185	Mrs. E. H.	48	14	.120	.195	.260	.210	....	0	Good trace	0	Heavy trace	Mod. trace
C- 146	*Mrs. E. C.	71	18	.105	.142	.198	.178	.161	0	0	0	0	0
C- 660	*Mrs. S. L.	26	23	.122	.185	.220	.182	.182	0	0	0	0	0
C-1392	*Mrs. R. C.	40	25	.090	.214	.207	.180	.130	0	0	0	0	0
C- 68	*Mr. O. E.	57	26	.195	.198	.226	.228	.215	Faint trace	Heavy trace	Heavy trace	Mod. trace	Faint trace
C- 781	*Mr. F. C.	38	28	.096	.237	.304	.267	.173	0	1.2%	4.0%	3.5%	2.3%
C-1426	*Mr. J. S.	44	28	.136	.180	.289	.219	.210	0	0	1.0%	1.7%	0.2%
C-1332	*Mrs. C. Y.	31	30	.160	.182	.170	.155	.150	0	0	0	0	0
C- 231	Mrs. L. B.	58	31	.110	.130	.120	.111	....	0	0	0	0	0
C-1362	*Mrs. A. S.	49	32	.160	.260	.465	.289	.290	0	0	0.1%	0	0
C- 208	Mrs. H. B.	53	37	.097	.149	.164	.107	....	0	0	0	0	0
C-1411	*Mrs. A. N.	39	37	.144	.262	.278	.208	.158	0	0	0	Faint trace	0
C-1465	Mr. L. M.	28	39	.093	.129	.137	.120	.090	0	0	0	0	0
C-1462	*Mr. L. L. B.	25	40	.085	.157	.243	.172	.106	0	Faint trace	0.6%	0.5%	0.7%
C- 971	*Mr. J. T.	30	41	.125	.151	.187	.148	.117	0	0	0	0	0
C- 140	Mrs. M. F.	48	50	.107	.123	.164	.143	.135	0	0	0	0	0
C-1115	Mrs. G. B.	37	56	.107	.107	.110	.122	.080	0	0	0	0	0
C-1080	Mrs. J. C.	59	68	.127	.125	.149	.118	.107	0	0	0	0	0
C- 285	*Mrs. J. J.	50	70	.110	.130	.127	.144	.119	0	0	0	Faint trace	0
C-1364	Miss P. H.	25	70	.120	.143	.150	.143	.137	0	[illegible]	[illegible]	0	0
C-1160	*Miss T. D.	17	74	.105	.160	.196	.180	.110	0	Faint trace	Faint trace	Faint trace	0
C-1175	*Miss S. W.	24	82.1	.140	.210	.220	.220	.180	0	0	Faint trace	Faint trace	0

50 years gave abnormally high responses.

Of the abnormal responses exhibited by the patients in Table I, we feel that we have detected at least 5 early diabetics, and perhaps 6, who exhibited no clinical evidence of the disease, and it is entirely possible that the other 9 cases might follow a similar course unless the dietary regimen instituted for them is carefully followed.

Table III is an arrangement of the cases according to their percentage of overweight.

TABLE No. IV

Percentage Overweight	No. Patients	No. Normal Blood Sugar Responses	No. Abnormal Blood Sugar Responses	Abnormal Males	Responses Females
10 to 19	6	1	2	0	3
20 to 29	5	0	5	3	2
30 to 39	6	3	3	0	3
40 to 49	2	0	2	2	0
50 to 59	2	0	0	0	0
60 to 69	1	1	0	0	0
70 to 79	3	1	2	0	2
80 to 89	1	0	1	0	1
Totals	26	11	15	5	10

Table IV summarizes the findings in Table III. It is interesting to note that of the 15 cases responding abnormally to the glucose tolerance test all of the patients between 20 and 30 per cent overweight were abnormal. The remainder of the abnormal responses is well scattered among the other percentages.

In Joslin's[1] statistical study of 1,000 cases of diabetes, 734 were overweight at or prior to the onset of the disease, and almost 50 per cent of this number were from 11 to 30 per cent overweight.

In conclusion, it is necessary to say that we fully realize that the number of cases studied is quite small and any definite statement made concerning this condition is subject to a large percentage of error. At the same time we feel quite strongly that the results are significant and that by a study of the glucose tolerance test, even in so small a number of patients, we have detected at least five prediabetics. Two of the five have definitely developed diabetes. The test is simple, reliable and of a great deal of value in stressing the importance of dietary therapy in these cases.

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DISCUSSION

Dr. Louis Hamman, Baltimore, Md.—There are many uncontrolled factors concerned in the interpretation of these glucose tolerance tests: for instance, the rapidity of absorption from the stomach. The recent studies of Fitz emphasize a point previously commented upon by Woodyatt and Epstein, namely, that blood volume is a factor of importance. There are in addition other associated factors beyond our control. Patterson, in testing his own glucose tolerance, has found that it varies widely from time to time. For instance, when he has been working hard and has been under nervous tension a hundred grams of glucose may send his blood sugar up to 0.16 per cent or thereabout. After he has been off on a vacation the same amount of sugar may cause a rise to only about 0.13 per cent. The tests, therefore, are only approximately accurate, but within these limits they do furnish us with valuable information.

An effort has been made to make the test more accurate by administering glucose in proportion to the patient's weight. I do not believe that this makes the test more accurate. It is true that the size of the individual has some influence upon the glucose tolerance, but it is more likely that this will vary according to body surface than according to body weight. It might be advisable to vary the dose of glucose in proportion to the body surface.

Dr. Paullin has added another bit of evidence to emphasize the important relation between obesity and diabetes. It would, however, be a serious mistake for practicing physicians to get the impression that in order to handle these cases satisfactorily they must do glucose tolerance tests. Dr. Paullin has shown that a large number of obese patients have a lowered glucose tolerance and that a number of these patients were identified as diabetic through the information gained from the test. It is sufficient to conclude that all obese patients are candidates for diabetes. Some of them have reached a point where their tolerance is so low that the disease is actually threatened. In others the tolerance is still reasonably good, but it is likely that they, too,

may in the course of years have their tolerance so far reduced that they are on the threshold of becoming diabetics. In a word, the important practical lesson to learn from these studies is that all obese patients are peculiarly liable to develop diabetes and for this reason obesity must be looked upon as a condition which in itself deserves serious consideration and appropriate treatment.

Dr. Elliott P. Joslin, Boston, Mass.—The amount of work that is entailed in a series of studies like these is very great, and the amount of control over one's patients still greater. When one realizes that five blood records were made of each patient daily and that these patients were fat people, one sees the beauty of the work. So far as I know, this is the most thorough and largest series of studies on this subject that has been made, and it is most significant. In my own paper, which follows later, I have something which bears upon the detection of the early diabetic, and I shall reserve what I have to say for that time.

Dr. James S. McLester, Birmingham, Ala.—Dr. Paullin has shown in a conclusive manner the accuracy of our old belief that there is a definite connection between diabetes mellitus and the disturbed metabolism of obesity. His work is also stimulating in that he has suggested certain questions. Does this connection between diabetes and obesity depend upon a restricted ability of the obese individual to oxidize his foodstuffs, or is it due to the often observed fact that the fat person habitually eats too much, usually of sugars, and that he thus early exhausts his ability to deal with carbohydrates?

Dr. Stewart R. Roberts, Atlanta, Ga.—I should like to call attention to a point already suggested, namely, the importance of considering obesity as an abnormal condition and as a prophecy of oncoming pathology of some kind, whether it be the overworked kidney, the overworked myocardium, or a disturbance of metabolism. Speaking generally, we may contrast the frequent obesity of diabetes with the relative lack of fat in pellagra. We sometimes see plump and well nourished individuals who have pellagra; but, as a rule, particularly in women, the pellagrin is very thin.

We have had a case under observation that we have discussed with Dr. Paullin. The gentleman weighed 350 pounds and suffered with diabetic gangrene. He was treated by a Chicago internist. Instead of weighing 350 pounds now he has a variant weight of 180 to 200 pounds, and his blood sugar is normal. He has no glycosuria and has not since he has been under our care, although we have done nothing for him except to keep him under observation. What his blood sugar and what his per cent of sugar in the urine were before and during the time he had his attack of diabetic gangrene, I do not know. But for practical hygienic purposes, a man with a loss of 150 pounds of fatty tissue is now normal, even though he suffered from diabetic gangrene previously. His Chicago physician and the patient himself attribute his improvement to the fact that he lost weight. I am not familiar with his condition in Chicago, nor do we know the blood chemistry figures or blood sugar figures of his Chicago attack. The man was treated for diabetes previous to the development of the diabetic gangrene by the Allen-Joslin treatment and received the benefit of such treatment.

We ought to keep tables of normal weight or ideal weights and compare the weight of each person with these tables. That point is accentuated in Fisher's book on "How to Live" and patients take to it easily. In some quarters I have known offices and clinics to show under dietetic treatment whether a patient gains or loses in weight.

Dr. W. H. Olmstead, St. Louis, Mo.—For the last two years we have been doing glucose tolerance tests by giving glucose according to the weight. We have made these tests on many neurological patients on the service of Dr. Schwab. I am very much impressed with the results obtained from certain neurological or psychiatric patients, namely, those suffering with early manic-depressive insanity, and especially those cases with introspective symptoms such as we call hypochondriacs. These patients give a rather high curve, and a curve that remains high for three hours, not so high as the diabetic or prediabetic. They are not to be confused with the latter. Diabetes gives a higher curve which remains much higher than curves from neurological patients. I was also impressed by the fact that a patient who is suffering from what we call neurasthenic symptoms may have a markedly abnormal curve. The mental state of the patients plays an important role in determining the height of the blood sugar after a glucose meal and it should never be overlooked in the interpretation of blood glucose curves.

Dr. Paullin (closing).—I am grateful to Dr. Hamman for bringing out the unsatisfactory things about the glucose tolerance test. We realize that it is not perfect by any means, because there are so many variable factors, yet it is the best test that we have at the present time for detecting the pre-diabetic and we thought it the most useful in studying the carbohydrate metabolism of those who are overweight.

The renal threshold of course is extremely interesting and there is considerable discussion yet as to just what this is, although the work of Dr. Hamman and others makes us believe that glycosuria occurs when the blood sugar is above 0.17 per cent.

Dr. Joslin, in his article to which reference has already been made, established clinically that the obese were considerably more likely to develop diabetes than the underweight or normal weight individual. We were interested to see whether we could predict those of the obese who would develop diabetes. We believe that we have been able to do this with a reasonable degree of accuracy. Are we, then, not justified in telling those who show an abnormal response that they will develop diabetes unless they change their dietary habits? As physicians we shall be more diligent in seeing that they do follow the proper dietary and hygienic regimen and avoid this preventable disease.

CLINIC ON SYPHILIS OF THE NERVOUS SYSTEM*

By Sidney I. Schwab, M.D.,
St. Louis, Mo.

I propose in twenty minutes to outline the problem of syphilis of the nervous system as it confronts the neurologist. The headings of this outline are set down in the program.

Syphilis as a Neurological Problem.—Syphilis excites the interest of the neurologist for various reasons. First, the nervous system may be involved at any stage of the invasion of the organism from shortly after the initial lesion to the final moment of a syphilitic individual's life. During this period both the attack of the spirochete and the resistance of the nervous system to this attack show themselves by symptomatic reactions of a most interesting kind. In some of these periods clinical pictures, varied or stereotyped, are produced which have been the subject of intense neurological study. Diagnosis of the kind of thing that is going on can be accurately made, and localization as to the place where it is going on is possible. These varied responses have thrown a direct illumination into the dark places of the physiology and anatomy of the nervous system and into various abnormal manifestations of consciousness. As a by-product of this intense action and reaction many social and economic problems arise, the solution of which falls to the neurologist. Syphilis individualizes its problem so that the neurologist is not dealing with a spinal cord or brain, but with a person whose spinal cord or brain is not acting properly because it has become syphilitic.

The end result of a successful spirochetal invasion of the nervous system in the clinical picture of tabes or paresis or a combination of both, or any of the results due to vascular processes, are problems that finally come to the neurologist after his professional brother has guided the syphilitic through the early and less resistant periods of his disease. At almost any stage of syphilis the neurological point of view and the neurological method of reasoning have their places. The pioneer work on syphilis of the nervous system has been done by the neurologist, and I am inclined to believe that the final thrust to secure more accurate data on this phase of syphilis will come from his efforts also.

Reaction of the Nervous System to the Organism of Syphilis.—Two aspects of this question are important. First, the structural components of the nervous system, both those that may be said to belong to that system and those having no embryological specificity, are engaged in the response to the attack of the syphilitic organism and respond in various ways. The nerve cells, nerve fibers and neurological elements are the specific structures which respond in characteristic manner, while the blood vessels, connective tissue elements and supporting structures of various kinds become involved as part of the complex picture which results. The spinal fluid, whether regarded as a specific neurological element or not, has a place, not completely understood in the ebb and flow of attack and protection.

Secondly, there is an element found in the problem presented by the nervous system which is not found elsewhere in either generalized or focal syphilitic processes. That is consciousness. This, after all, is the highest expression of nervous activity. No consideration of the relation between syphilis as a disease and its effect upon structure is complete without serious consideration of the result to this function as a part of the process. I mean by consciousness here the broadest conception possible, including intelligence, personality, and conduct reactions. This implies, I suppose, the totality of the social phase of the syphilis question as it focuses upon an individual whose nervous system either resists or succumbs to the invasion of the organism of syphilis.

With this comprehensive display in mind, it is now possible to present in a brief way the various types of diseases which a successful or partially resisted attack upon the nervous system produces.

*Introductory paper, Neuro-Syphilis Clinic, Southern Medical Association, Fifteenth Annual Meeting, Hot Springs, Ark., Nov. 14-17, 1921.

The types of clinical expression may be divided into five groups: the constitutional reaction type; the meningo-vascular type; the central or degenerative type; the hereditary type, and a type which includes the various reactions of the nervous system in the face of non-nervous syphilis. Several things should be said about this classification. First of all, it is not a rigid classification, that is, there are many intermediate types made up of this and that element of these groups. There is found in the central or cell type reaction phases which belong to the meningo-vascular form of syphilis. In tabes there may be and probably are at all periods of the disease foci of meningo-vascular reaction. When types of clinical expression are mentioned it is understood that it is the prevailing phase of that particular clinical reaction that carries the picture along. It is also to be noted that the type itself may be largely diagnosed and separated out by the evidence of clinical examination rather than from the evidence of serological or microscopical findings.

The meaning of the constitutional reaction type is this: that every individual who has a primary infection and shows a characteristic localized or general reaction to that infection also may show evidences of invasion of the nervous system during this period. This invasion of the nervous system is shown by two sets of facts. One is a rather general, not very often localizable group of clinical symptoms, and second, is evidence pointing to the invasion of the nervous system by the syphilitic organism or its products. The frequency of this invasion of the nervous system in the early stages of syphilis is still a matter of debate. In large series of examinations of the spinal fluid a considerable proportion shows evidence of an early meningitic reaction.

It would be safe to say that from 10 to 15 per cent of all individuals who have a primary infection and who show constitutional reactions have at the same time somewhere during this period an invasion of the central nervous system. The invasion of the central nervous system in this particular phase of syphilis may be temporary or it may be more or less permanent. It may mean merely an evanescent reaction of the spinal or cerebral meninges comparable to roseola on the skin or it may mean a more or less permanent fixation or sensitization, perhaps, of the meningo-vascular system of the spinal cord. The frequency with which characteristic symptoms are produced during this period is also a matter of some debate. Whether headache, fatiguability, paresthesias, and special sense reactions are definitely to be attributed to the invasion of the meninges or whether they are simply the result of the general toxic condition due to the syphilitic attack on the organism as a whole is still a matter of speculation. It would be a very important clinical gain to be able to determine in any given case by the examination of the spinal fluid, plus the evidence of objective findings, whether or not the individual showing these things is a potential nerve syphilitic or not.

Some advance in this direction has been obtained in a series of investigations in which it has been asserted that if the increased cell count does not disappear, and if the reaction of the fluid is retained after some weeks, the individual is to be regarded as a potential meningo-vascular or central type of syphilitic. I believe, however, that these questions are still open. In the meningo-vascular type the transition from the primary syphilitic invasion of the central nervous system to the meningo-vascular is not a direct one. The individual who has evidence of constitutional reaction type with cells in the spinal fluid and positive Wassermann reaction does not from this stage necessarily pass directly into the meningo-vascular type. Over and over again it has been demonstrated that a patient with primary syphilis and with general constitutional effects shows after a number of years a completely negative spinal fluid and a completely negative blood.

The involvement of the central nervous system in the more permanent manner of the meningo-vascular type comes about very slowly and proceeds without showing definite traces. As a rule, the first evidence that a meningo-vascular process has started is found in the course of an

examination of the nervous system in the presence of some other disease or complaint. The meningo-vascular phase of syphilis means, therefore, that the nervous system is definitely involved in the process and that its active participation in the ebb and flow of the spirochetal attack measures the resistance of the nervous system or its final surrender in the way of permanent injury with the resulting cellular scarring. This resistance is of course increased or lessened by treatment temperately or intemperately given. The activity of the process can be measured, or rather indicated, by the scattering of symptoms, by the evanescent character of the objective findings and by the great variety of serological and microscopic tests. Neither the increase in the number of cells, the type of Wassermann reaction, the globulin content nor the definiteness of the gold curve can be accepted as evidence of the severity of the process, its focal distribution, or the permanence of the injury that will result. The fluctuating character of all of these tests either under treatment or in the face of no treatment whatever, would seem to indicate that much depends upon the type of organism and the native resistance of the tissues of the nervous system. It is important to keep in mind the fact too often neglected that the nervous system is not alone being invaded and resisting, but the whole organism is also concerned in the confused struggle that is going on. Therefore it is essential so to control whatever treatment is instituted that damage is not done to organs not directly in focus.

To view this stage of syphilis as superficial and inflammatory with the main foci in the meninges and in the blood vessels and with only distant and slight participation of the cord and brain furnishes the best insight into the pathogenesis of this stage of the invasion of the syphilitic organism against the nervous system. The symptomatic display is in accordance with the nature and the localization of the lesion. As would be expected, the meningitic character predominates. Therefore headache of various types and pains of various sorts with transitory sensory area defects are noted. Cranial nerve palsies, weakness and paralysis of this or that extremity, changes in the deep and superficial reflexes, inequality in the distribution and extent of the objective findings of whatever sort they may be, furnish the clinical criteria of this type of syphilis.

Here, too, there is established permanently the pupil changes in contour, equality and reflexes, abnormalities to which much diagnostic importance is rightly attached. The scars of the nervous system are frequent and there always results, I believe, some kind of permanent damage, no matter how effective treatment has been nor how vigorously the nervous system has been able to resist and protect itself. Some of these permanent changes are carried over into the cellular phase and give to it the variability in clinical reaction which the systematic degeneration itself would scarcely produce. The meningo-vascular stage is of the greatest importance because it is here that treatment is most effective. Here very often the individual may be rescued from the stage of final cell destruction or system degeneration toward which every patient with syphilis may be said to be heading.

The transition to the next stage of nervous syphilis, that of cell degeneration, is not necessarily direct or rapid. There is here a diversion in opinion. The most logical view is that out of the meningo-vascular type of lesion there develops by slow and always progressive stages such an extension of the process that finally the cell structure itself becomes involved with consequent degeneration of the nerve fibre and its branches and neuroglial overgrowth as a part of the picture. The other view is that there is no intermediate stage necessarily, that is, no meningo-vascular interregnum, but that the nerve cell itself falls a victim to the organism either because it has a special predetermined affinity for the cell or because there is wanting in the structure of the nervous system the essential quality for defense. This may be brought about either by some congenital peculiarity or by some innate quality in the spirochete or through the weakening of the defensive

power by some previous disease or acquired defect. That tabes or paresis or its combination may develop from a pre-existing meningo-vascular process cannot be doubted. Clinical evidence in support of this is found on all sides and the history of many tabetics or paretics will show the steady advance through the meningitic stage to the final cell destruction.

The central or parenchymatous type is primarily a cell degeneration and with each cell so degenerated the chance for replacement either of structure or function disappears.

The effect is clinically evident in the system aspect of this condition in which total function is interfered with as in the defects of the posterior columns of tabes and the consequent involvement of the whole sensory system. In the paretic reaction whole areas of the brain disintegrate so that the personality of the individual becomes broken up in consequence of the frontal localization of the process.

The central type of syphilis represents the last and the deepest structural element attacked and becomes the final clinical picture in the drama of nervous syphilis.

Regarding hereditary syphilis, the most illuminating thing perhaps that can be pointed out is that it is the reaction of the nervous system in which the response is predetermined through a period of adaptation and fixation. That is, there is not the same sort of resistance to the attack nor is the defense so active as in the acquired types. A kind of tolerance has been established both on the part of the organism and on the part of the nervous system. Most often the cell type of syphilis results with a corresponding clinical reaction.

In the last group, that is, the nervous system in non-nervous syphilis, are placed two kinds of cases. Both have syphilitic lesions elsewhere in the body. Cases belonging to the first group present the effects of this in an extreme but often logical reaction to a knowledge of what a syphilitic infection implies. It is not the groundless fears of the syphilophobe but the reasoned out anticipation of future possibilities. In the second group are cases in which there develop vague symptoms of a general type, fatiguability, muscular inefficiency, mental slowing up, lessened capacity, etc. In these cases spinal fluid is always negative and no increased cell count is ever found. The blood becomes negative. Over many years such cases never show lesions of the central nervous system.

These, then, are the five groups which appear to me to lend themselves most easily to understanding and discussion.

Diagnostic problems may be simply stated in this way. The blood and spinal fluid Wassermann reactions establish the fact that syphilis of the nervous system is present. The cell count establishes the fact of meningitic involvement. The increase in globulin is supporting evidence of the latter conclusion. A curve in the paretic zone suggests paresis, one in the syphilitic zone meningo-vascular or central syphilis. The absence of any or all of these is of less significance than their presence. No value can be attached to any of these findings unless they are found in repeated tests. Minor fluctuations are of little significance. The final test diagnosis of syphilis of the nervous system is the evidence derived from the data of physical examination. Diagnosis can be made only when there is sufficient positive evidence to prove that the nervous system is damaged to an extent sufficient to result in disturbed function. This evidence is strengthened if the laboratory findings are in accord. Without this support it is still evidence. Technical excellence in laboratory tests must go hand in hand with technical skill in physical examinations. It is encouraging to note that these two test systems are running more and more parallel and exceptions are becoming less.

Treatment. — Treatment of nervous syphilis is a matter about which too much time has been spent and too much debate has taken place. Mercury, iodids, arsphenamin or its kindred products, plus the general treatment, handling and direction of the patient are all the measures that can be used. In the use of all these methods with the exception of iodids there

is some risk to the patient. The intraspinal method of giving arsphenamin is the most dangerous and should be reserved for such cases as do not respond to arsphenamin given in the ordinary way. I believe that technical variations are of little consequence, and that that procedure which produces the best results, which damages the nervous system the least, should be the one selected. The value of any method should be measured, first, by the general improvement of the patient, then by the disappearance or mitigation of symptoms in respect to the nervous system, third by the diminishing physical signs, and fourth by the various alterations in the chemical and microscopic tests.

DISCUSSION

Dr. M. L. Graves, Galveston, Tex.—Within the last ten years syphilis as a public problem has confronted all of us as physicians and has taken on additional importance. To the internist, for example, vascular syphilis, such as in syphilitic nephritis and syphilitic hepatitis, is of great importance. Those cases that are associated with jaundice, for instance, and not with the ordinary sclerotic changes that we know as luetic cirrhosis, have attracted the attention of the internist, and now increasing attention is being paid to those infections that involve the nervous system.

This is particularly interesting because of the uncertainty as to the time in which neurological infection may occur after the primary lesion. Those who have had a large experience with syphilis give statistical information varying from 2 to 20 per cent of cases of constitutional infection developing neurological symptoms, but they do not say just how soon these may occur. Dr. John A. Fordyce, of New York, who has had a large experience, in an article during the past year in the *American Journal of the Medical Sciences* has given his opinion that a large number of cases of neuro-syphilis that finally show degenerative changes of tabes dorsalis, taboparesis or paresis itself, must occur within the first year of the syphilitic infection. We have no means of knowing yet, except by the clinical phenomena that are presented and by the serum reactions in blood and spinal fluid, just when syphilis may present the clinical syndrome. We realize how important this is, because here and there, those of us who see these cases will find patients presenting meningo-vascular syphilis with headache, depression and insomnia, and even a stuporous condition in which a patient may be committed to one of our insane asylums, and branded with a stigma easily preventable by a careful examination of the spinal fluid. It behooves us always to keep syphilis as a cause of neurological phenomena on our diagnostic horizon. When a student I used to be taught that hysteria was the most multifarious in its manifestations of all diseases. I have come to believe that this is no longer true. Syphilis takes first place, and an enviable distinction may now be claimed by the various and multiform manifestations of epidemic encephalitis.

I have referred to cases beginning as meningovascular syphilis, a type which the Doctor has clearly outlined. Neurasthenic cases may travel all the way from South America to New York, and around through New Orleans and Texas, and go on for ten years with a complex of symptoms that should be readily diagnosed. These patients will often run the entire gamut of neurological phenomena, from neurasthenia and psychasthenia to ordinary headache, insomnia, nervousness and paresthesia before they are suspected of having syphilis and before definite examinations are made of the spinal fluid.

I have been surprised at the infrequency of hereditary syphilis, and at the infrequency of syphilitic infection among females. This is perhaps due to the character of practice in which I am engaged. Those who have hospital experience, such as I have among colored people, will recognize how frequent syphilis is among them, and how much less active and fulminant the neurologic symptoms may be, so that we may very readily in them overlook syphilitic infection when we are considering symptoms that do not present so great intensity as they do in the white race. I trust the discussion of this subject will lead all of us to an earlier and more accurate recognition of these important cases.

Dr. Loyd Thompson, Hot Springs, Ark.—The question of strain in spirochetes is one of im portance. If we could take a chancre, for in stance, and get the spirochetes from it and say whether or not this strain of spirochetes which we see is going to produce neuro-syphilis, we should be going a long way. There is quite a little evidence, both clinical and laboratory, to substantiate the view that there are different strains of spirochetes.

Dr. Schwab mentioned the paretic curve, or the curve which was suggestive of paresis. A typical paretic curve found from examination of the spinal fluid, if there is other evidence of neurosyphilis, a positive Wassermann particularly, is indicative of paresis.

In regard to the treatment of neuro-syphilis, we know that intraspinal therapy was used a great many years ago, but it was only in 1912 or 1913, when Swift and Ellis brought out their technic of intraspinal therapy, that it became popularized. Since that time there have been many modifications of their technic of more or less value. I believe the Ogilvie technic, or a slight modification of it, is of the most value and of less damage to the nervous system. That is one of the points Dr. Schwab brought out, that we should use the technic which does least damage to the central nervous system.

Spinal drainage has been used a great deal, but in my hands has not proven at all satisfactory. We get as good results from intravenous therapy as when we use spinal drainage in connection with it. Trephining the skull and introducing arsphenaminized serum or other therapy into the meninges is to be strongly condemned. It should not be used at all.

Shall we treat the paretic? That is a question that occurs to most of us many times, and it is still a question with me. I do not know what to do.

Dr. Tom A. Williams, Washington, D. C.—The discussion of this problem by Dr. Schwab is the only presentation with which I have been able to agree *in toto*. As he stated, we have heard far too much about the treatment of neuro-syphilis. I may add that we have heard far too much from ill-grounded men. In neural syphilis it is only in an auxiliary place of diagnosis that we need utilize spinal puncture and the laboratory. They are the less important diagnostic criteria.

With reference to the statement about the necessary anticipation of cellular syphilis by meningo-syphilis, I should like to refer to an article published in 1909, in the *American Journal of the Medical Sciences*. Three instances are cited of patients who came to the clinic without any signs of syphilis. In the course of routine lumbar puncture they were found to have highly charged spinal fluids in which lymphocytes were in great numbers. All these three patients within a period of a year came down with definite clinical meningeal syphilis, and one case with cellular syphilis also. In spite of that observation published so long ago, these facts remain almost entirely outside the consciousness of the profession.

No cellular syphilis will occur unless we see this meningeal or vasculo-meningeal syphilis. It is in the stage of cellular destruction in which intense changes have occurred that we can not hope to save the patient as an individual, because even if we could treat him successfully and arrest the disease, by the time he has reached the stage we call clinically paresis and we have treated him in that stage for any considerable period, if we have cured his syphilis, we should cease to bring back to the world a person capable of carrying on his life work, because there is too much destruction of necessary elements.

There is another problem which can not be answered any more than the first problems, and one to which I think the profession should now direct its more active attention. It is very significant that in some cases we find the development of tabes within six months of the chancre, whereas in most cases it is a matter of several years before tabes shows itself. It may be as many as thirty to forty years. It is also significant that certain cases of paresis, after a diagnosis is made, may live fifteen or twenty years in comparative comfort and health. There are many such attested cases, even untreated cases. Does not that point to the exceeding importance of a factor which is scarcely spoken of at all in connection with the treatment of syphilis and its management, namely, the factor of organismal resistance? We must try to find out why certain individuals seem to resist, as regards their nervous system as well as the other systems, the inroads of the Treponema pallidum, and why in other cases there is a fulminating tabes; why a man who had syphilis six years ago suddenly developed tabes in a week of what we call the fulminating type. It is this kind of questions we must address ourselves to rather than to the details of treatment, which are I think pretty well at our command.

Dr. William G. Somerville, Memphis, Tenn.—The first question arises as to how early we may have neuro-syphilis. There is no doubt that the meningo-vascular form may occur very shortly after the initial lesion. I recall a case I saw several years ago in which the initial lesion occurred in December. The patient had received several doses of arsphenamin and was in fairly good condition when he was discharged. He returned to the hospital in February with paralysis of a good many of the cranial nerves from the sixth, eighth, ninth and tenth, and so on. He was treated again and made an apparent recovery.

I was glad to hear Dr. Schwab emphasize the importance of the clinical signs. So often men rely altogether upon the laboratory signs. We know that there are cases of tabes and other types of neuro-syphilis in which the blood as well as spinal fluid is negative to the Wassermann test. It is very important to know the clinical signs, not only for the neurologist but the internist, so as to recognize these cases without going to the laboratory.

The negro very seldom has tabes. I can count on the fingers of one hand the number of cases of tabes I have seen in negroes. Paresis is more common among them.

All cases of paresis should be treated actively, because it is almost impossible to differentiate general paresis from the other forms of neuro-syphilis. There are some grounds for the belief that there are certain strains of the spirochete. I shall close my discussion by reporting a case which I saw some years ago. A man came to me with paralysis of the seventh nerve. He gave a history of having had an initial lesion a short time before. Two or three weeks later he brought the girl to the office from whom he received the infection. She also had a paralysis of the seventh nerve. About a month later he brought a friend of his, another young man, who had been infected by the same girl. He too had paralysis of the seventh cranial nerve.

Dr. Otto Lowy, Newark, N. J.—We are talking about nerve syphilis, but how many of us realize that we have been guilty of permitting cases to reach the stage where they develop nerve syphilis. Since the advent of salvarsan or arsphenamin, those of you who treated cases very early in 1911 and from that time on, will remember a class of patients who did not seem to need more than one or two doses. I do not know how many of you have had some of these cases come back to you with nerve syphilis. I have had some. It is necessary for us to recognize nerve syphilis and treat it. Word should go out from the Southern Medical Association to the general practitioner to recognize and treat syphilis until there is no danger of any nerve involvement.

Dr. George M. Eckel, Hot Springs, Ark.—It is important to treat the individual as well as the disease. I have reference particularly to cardio-vascular and renal lesions whether the pathologic process be luetic in origin or merely an associated non-specific complication.

As to the method of choice of intraspinous therapy in neuro-syphilis the best guide usually is the method with which the clinician or neurologist is most familiar, and the best results will be obtained by that method. The treatment of nervous syphilis as I see it, is largely an individual problem. Satisfactory results in the way of treatment will depend largely upon the thoroughness of the analysis of a given case.

Dr. George L. Echols, Milledgeville, Ga.—If I understand Dr. Schwab correctly, he emphasizes the clinical findings and minimizes the spinal fluid findings.

Dr. Schwab.—I did not intend to convey that impression.

Dr. Echols.—Out of 223 consecutive positive spinal fluid examinations, we found four cases with positive spinal fluid findings that showed no other sign of neuro-syphilitic involvement, all the usual symptoms being absent. We certainly get neurological involvement which we are going to overlook unless we study the spinal fluid.

In the above 223 consecutive positive spinal fluids, we had 17 which gave a negative blood Wassermann. We urge the examination of the spinal fluid in all cases of positive blood Wassermanns, and also in all cases with a negative blood Wassermann which shows any symptoms or signs pointing toward a neuro-syphilitic involvement.

We have all seen patients who showed signs of general paresis, who had the typical spinal fluid findings of paresis. Under treatment the fluid changed to that of neuro-syphilis. When it comes to the subject of syphilis in any form, the idea is to treat the patient, to cure him if possible. When in doubt as to whether a syphilitic is too far advanced to treat, take advantage of the doubt and treat the patient anyway, if there are no contra-indications. We should treat to cure early syphilitic infections, treat to prevent neurological involvement, and treat to arrest advanced neurological involvement.

Dr. James J. Terrill, Dallas, Texas.—My inclinations are naturally toward the laboratory findings in these cases. Before taking up neurological work I was for fifteen years in a laboratory and I depend upon the laboratory a great deal. Having had experience in laboratory work I am very careful to select the man to do my laboratory work. I know how easy it is to make mistakes in technic.

Those of us who have treated these cases have seen what looked like hopeless cases. They would have what I am going to call a remission, and yet these people would return to a daily life which was reasonably normal. All patients have a right to a very thorough, very efficient, and very active treatment for a prolonged period of time, giving them the benefit of a doubt, because after they once come back confirmed paretics we know what the final outcome will surely be.

I use the Swift-Ellis treatment. I use intraspinous injections of mercury and am now using spinal drainage combined with intravenous neo-arsphenamin. I know spinal drainage has been condemned. It has been condemned here this afternoon, but I get better results where I use complete spinal drainage with the addition of neo-arsphenamin than when I use neo-arsphenamin without drainage. Some of the clinical symptoms are greatly benefitted by the drainage. It may be that the drainage alone does it, or the neo-arsphenamin alone, but I shall continue spinal drainage plus neo-arsphenamin and other active adjuvant treatment until I am convinced to the contrary.

Dr. James H. Randolph, Jacksonville, Fla.—In our hospital work we have no opportunity of seeing these cases in the early stages. Of course, it is the internist who usually sees them first. For eleven years I have been out of hospital work and have been engaged in private practice, and it has been my pleasure to see these cases earlier. I think the small percentage of the cases referred to by Dr. Echols in which physical symptoms were found early before the spinal fluid became positive, were due to some vascular changes, either trauma from outside, or from blood-stream infection (luetic or otherwise), damaging the vessel walls. I have changed my opinion since I have been out of hospital work and have seen these cases of mental disturbance with positive blood Wassermanns, but negative spinal fluid.

I do not believe we can have a real paresis or tabes (that is cerebral or spinal or cerebro-spinal lues), without evidence of some kind in the spinal fluid. We may have syphilis in various other tissues, and a positive blood Wassermann without cerebro-spinal involvement. There is always the possibility that a syphilitic infection may lead to neuro-syphilis and every such venereal patient should have a spinal fluid examination for evidence of cerebro-spinal involvement. But not until then, should he be considered even a potential paretic.

There are one or two questions that have often arisen in my mind and have recurred to me while listening to Dr. Echols and the discussion evolved, and which I would like to see elaborated. One is the question of the period of time which may elapse between the initial infection and the development of the paresis or neuro-syphilis; and the other is the question of why this latter development takes place at all in some cases and not others.

Dr. Echols has suggested the possibility that if we waited long enough, it would develop. As I remember, the statement was made that every syphilitic patient was potentially a paretic. I agree with him only as to the possibility; but as I said before, I do not think such a patient is a potential paretic until the central nervous system is involved. Now, then, when does the potential danger become an actual fact, and do cerebral lues become paresis? And what is the determining factor in the change?

Every physician is familiar with the varying phenomena of "resistance" evidenced by various individuals to any given diseases, also to the "tissue resistance" offered by different tissues in the same individual to a given disease. Also those of us who have had much to do with the examination of cerebro-spinal fluid are familiar with the varying degrees of intensity of reaction as evidenced by the Wassermann test, cellular elements, albumin content, etc., and also the vari-

ations in the reaction found in the same patient at different times.

In explaining the occurrence of paresis (or tabes) in some patients and its absence, or postponement, in others, I am not wholly committed to the theory of special cellular-reaction or toxicity, but am more inclined to see the paresis developing *pari passu* with a destruction of nerve cells or interference in function, caused by "strangulation" or constriction, with resultant "pressure" effects (stimulation, exhaustion, death of tissue, etc.) from the pathological spinal fluid. This pathology, as we know, consists of various changes shown by the Wassermann reaction, cell count, or globulin tests; and it is the last named particularly, which I believe determines the symptoms of paresis (or tabes) with the degree and incidence of its occurrence. In some cases the coagulability of the fluid is much more intense than others; and also in the same case we find this morbid property of the fluid varying from time to time. The variations we observe in onset and severity of symptoms are coincident and dependent upon the variations in the reaction of the spinal fluid, as regards viscosity or coagulability especially.

Dr. A. U. Williams, Hot Springs, Ark.—In neuro-syphilis, certain symptoms are more apt to follow cases in which there have been very slight secondary manifestations. Why, I do not know. I rarely see a man with tabes or paresis who has had a well developed secondary eruption. The development of the nerve symptoms of syphilis is as uncertain as the weather. I have seen them occur in six months after the initial lesion, and anywhere from six months to twenty years. The majority of patients with tabes who come to Hot Springs for treatment will give you the same history. In reply to the question, "Did you ever have syphilis?" they will answer, "I do not know. I have had a lesion but it did not amount to anything." They did not seem to know what they had. If you ask them whether they had any eruption, they say "No"; they never had any secondary development at all, or the secondary development was so slight that they did not know what it was. The majority of cases of neuro-syphilis do not have well developed cases of secondary stages.

Dr. Schwab (closing).—My emphasis on the clinical findings will not I hope invalidate the importance of the examination of the spinal fluid. Every case of neuro-syphilis in Barnes Hospital, St. Louis, or any case in which there is a suspicion of a lesion of that kind in the spinal cord has a spinal fluid examination as a routine. The data obtained from the spinal fluid examination must in all cases be individualized and carefully and critically studied. The paretic curve is found in other things than paresis. Cases of epidemic encephalitis, multiple sclerosis, and other lesions of the central nervous system show this type of curve. The spinal fluid is to be considered only as one series of evidence; the blood another; and a careful objective examination of the nervous system a third series of evidence. Of these three series of data the least open to doubt is an examination in the hands of a skilled neurologist and the critical weighing of the evidence so obtained. I am quite sure that no clinical reaction of the central nervous system due to syphilis can be diagnosed from the spinal fluid alone. The case is not to be considered paresis unless it gives characteristic mental symptoms. I do not care what the spinal fluid shows, the final criterion in diagnosis is the clinical picture presented by the patient. I have no objection whatsoever to anyone's treating paresis with arsphenamin, if he so desires, in any form that he wishes, but do not confuse the issue by assuming from the spinal fluid examination alone that every case in which a paretic curve is found is paresis in the absence of clinical evidence upon which a diagnosis of this kind must eventually rest.

X-RAY DIAGNOSIS OF AORTITIS*

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Photographic Reductions
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In discussing the diagnosis of disease of the aorta, aortitis and aneurism, we wish especially to emphasize the important part played by the x-ray in its detection.

It is true that in many instances we are able by means of a careful history and physical examination to diagnose disease and to determine its location; for, in the main, the division of aneurisms into those of signs, and those of symptoms, still holds good, the former referring to aneurism of the ascending, the latter to aneurism of the transverse, and descending portions of the arch. Since the ascending arch is more mobile and not in so direct contact with neighboring organs as other portions of the arch, it is more prone, when the seat of disease, to give rise to signs before the development of symptoms.

The signs to be sought are: abnormal pulsations, palpable or visible, in the upper interspaces to the right of the sternum and in the suprasternal notch; upward displacement of the right subclavian artery; a thrill, usually systolic; a diastolic shock to the palpating hand; diminished resonance to the right of the sternum

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in the second interspace; a systolic murmur and an accentuated second aortic sound. The importance of general symptoms of aortitis, dyspnea, vertigo and cardiac distress or pain, is not sufficiently recognized. The physical signs may be slight and easily overlooked and unless a careful examination of the base of the heart be made, aortitis of the ascending arch frequently escapes detection.

In diseases of the transverse portion there may be physical signs but not uncommonly one's suspicions are directed to the aorta on account of symptoms which suggest encroachment upon other organs (trachea, esophagus, left recurrent laryngeal nerve, etc.) Likewise, if the descending portion of the arch be involved severe

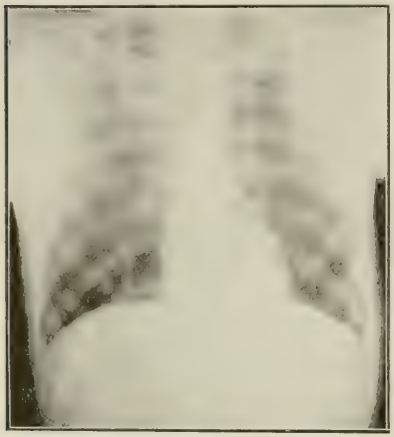

Fig. 1.—Normal heart showing on the right side the contour of the right auricle and ascending arch; on the left, the curve of the arch and the outline of the left ventricle. The pulmonary artery and left auricle curves are not prominent.

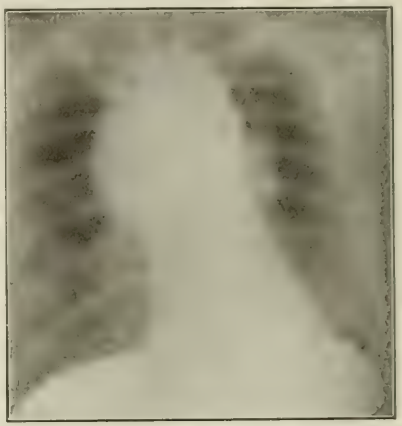

Fig. 3.—Large aneurism of ascending arch. Patient lived over three years after the introduction of silver wire into the sac. (Case of Drs. Minor and Ringer.)

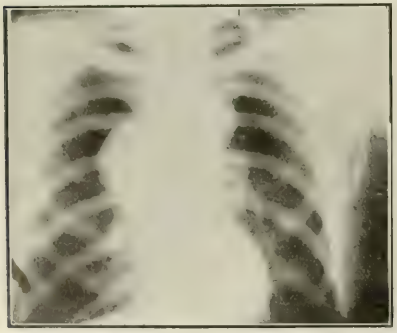

Fig. 2.—Large saccular aneurism of ascending arch "aneurism of sinus." Symptoms: dyspnea and vertigo; no pressure symptoms. (Courtesy of U. S. Public Health Hospital, Kenilworth, N. C.)

Fig. 4.—Fusiform dilatation of ascending arch. There is a distinct bulging toward the right and the arch appears to originate at a lower level than is normal.

pain or other pressure symptoms may enable one to locate the seat of disease. Not

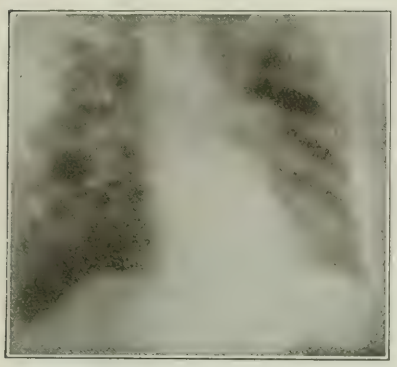

Fig. 5.—Aortitis with dilatation. Slight bulging of ascending arch. Chief symptoms, dyspnea and cardiac pain.

uncommonly, however, both subjective and objective evidence may be so slight that an aneurism in this region may attain

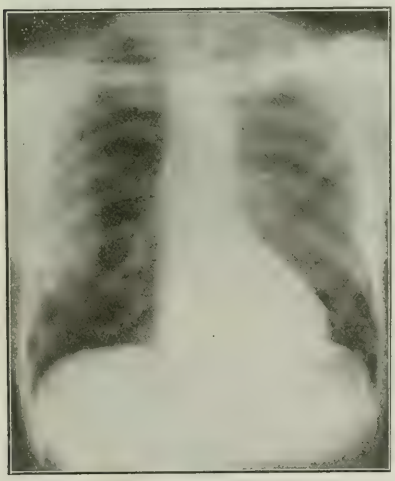

Fig. 6.—Diffuse aortitis. Note bulging of right border. Thrill and accentuated aortic second sound. Symptoms: vertigo, dyspnea and cardiac distress. (Case of Dr. Scruggs.)

considerable size before its existence is suspected.

Since signs and symptoms are not always in proportion to nor commensurate with the magnitude of the changes which actually exist, the x-ray furnishes a most useful addition to the methods at the command of the cardiovascular examiner and should be employed wherever possible; for they not only furnish corroborative evidence but at times lead to the discovery of an aortitis or aneurism whose existence could be determined by no other means. Knowledge of the pathology of the heart and great vessels and considerable

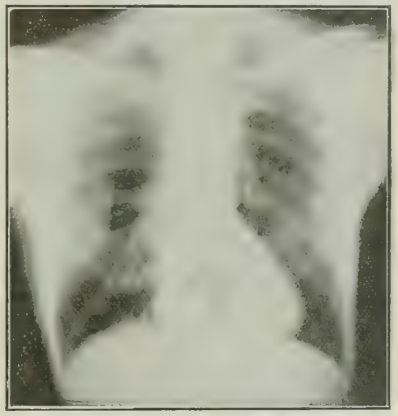

Fig. 7.—Aortitis with dilatation and elongation, pushing aorta to the left. Note prominence of left border of arch; below this, a fainter shadow, the descending arch. (Case of Dr. Scruggs.)

technical skill are essential, and as both these accomplishments are not commonly acquired by either roentgenologist or clinician, the best results are obtained when the two work together, correlating their separate findings.

The x-ray examination may be either fluoroscopic or radiographic, but when possible, both should be used. Neither takes the place of the other. Fluoroscopically, the heart's size, shape and position are observed, its action carefully noted, as well as the relation of the heart to other thoracic organs. The oblique and transverse views enable us to examine the antero-posterior diameters of the aorta and to recognize pulsation in tumors adjacent

to the heart and vessels, which are hidden when sought for in any other way.

Instead of making a tracing of the heart on the fluoroscopic screen, I prefer to make

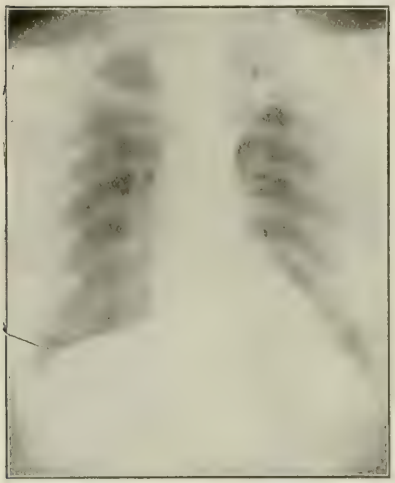

Fig. 8.—Aortitis. Slight bulging of right outline; there is distinct widening of the aortal shadow. Heart somewhat enlarged. Subject is a periodic drinker. No cardiac symptoms.

a radiograph, the patient sitting erect with his chest against the film and the x-ray tube placed behind him so that its

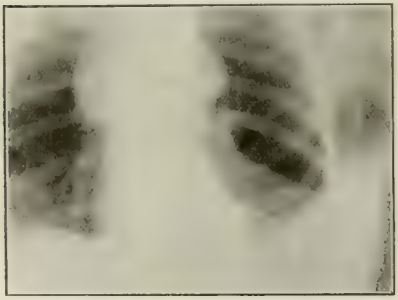

Fig. 9.—Aneurism of entire arch with bulging of chest and erosion of sternum, yet the patient complained of but slight distress at the time the plate was made. (Case of Dr. Hunnicutt.)

central ray will pass through the spine of the seventh dorsal vertebra to the center of the film or plate, six feet away. Duplitized films with double intensifying screens make very short exposures (one to one-half second) possible.

It is of the utmost importance to make the examination in a routine manner, adhering to one technic. A study of the radiogram made in accord with this technic gives very definite information. By examining many different types of normal individuals we form a conception of what a normal heart should look like. There will be wide variations within the normal but the different types will show the same characteristic curves for the left

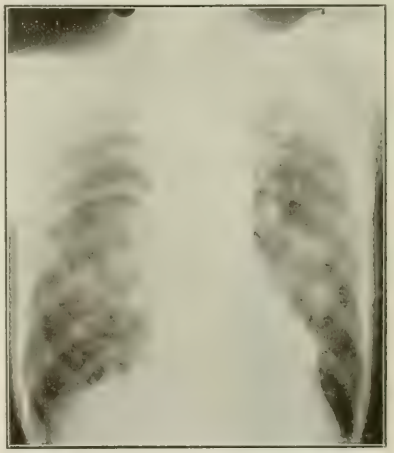

Fig. 10. Aneurism of arch at origin of innominate artery. Patient has extensive tuberculosis. The arch is drawn to the left. Signs are not typical of aneurism. There is enfeeblement of right pulse. (Case of Drs. Manor and Ringer.)

border of the arch of the aorta ("the aortic semicircle"): the pulmonary artery, the left auricle and the left ventricle on the left of the midline of the chest; on the right the curve representing the ascending aorta and the right auricle. (See Fig. 1.)

In aortitis and aneurism these contours are changed. Saccular aneurisms are usually recognized without difficulty. Those of the ascending portion lie chiefly to the right of the midline (Figs. 2 and 3); those of the transverse arch cast

shadows in the upper mediastinum which extend to the right or left depending upon which portion of the arch is involved (Figs. 9 and 10); while aneurisms affecting the descending portion of the arch lie to the left of the midline. Fig. 2 shows a large saccular aneurism; Fig. 12, a transitional form, a fusiform aneurism which will probably become saccular. (As pointed out by Dr. Chas. L. Martin, Fig. 12 may represent a patent ductus arteriosus.)

Fig. 11.—Large aneurism of descending arch with symptoms suggesting tuberculosis; cough and expectoration, hemoptysis, slight fever and night sweats. There was paralysis of the left recurrent laryngeal nerve. (Case of Dr. C. H. Cocke.)

Less spectacular than the cases just discussed but perhaps more important because they are so commonly overlooked are those cases of aortitis with dilatation that are not usually classified as aneurisms. Many of these cases pass from one physician to another complaining of fatigue, dyspnea and oppression in the chest. While these symptoms may lead to a tentative diagnosis of "heart disease," the actual condition is frequently not recognized until an x-ray examination is made.

This type of aortic disease is most commonly found in the ascending arch, but quite often the transverse portion is involved as well. Sometimes there is dilatation with elongation of the entire arch. The dilatation may be slight or well marked. In Fig. 4 the contour of the ascending arch is seen to balloon outward toward the right, and there is a fusiform swelling which might be termed aneurismal. In other cases the contour is not greatly altered, but there is an abnormally broad aortal shadow (Fig. 5). Fig. 6 shows a bulging of the right aortal outline as well as a well marked curve of the arch on the left side. Fig. 7 pictures a case of dilatation with elongation of the arch. The shadow is broadened, the arch is pushed to the left, making the left contour sharply curved, and directly below the descending portion of the arch, ordinarily not visible, is seen as a faint shadow. A widening of the aortal shadow is seen in Fig. 8.

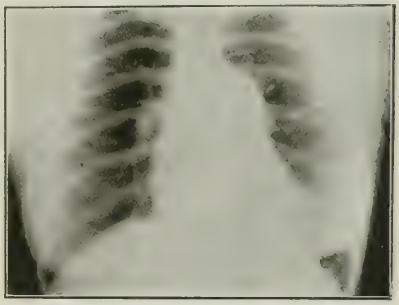

Fig. 12.—Aneurism of descending arch (aneurism of symptoms?). This was discovered accidentally during fluoroscopic examination. Physical signs: systolic murmur over apex and signs of an enlarged heart. Symptoms, practically nil, and no pressure symptoms.

It should be remembered that widening and elongation of the aorta is met with in many individuals past middle age, so that this fact must be given due consideration before a diagnosis of an abnormal condition is made. A careful study of the aortic contour at different ages will do much to prevent one from making this error.

DISCUSSION

Dr. J. B. McElroy, Memphis, Tenn.—While it may be somewhat unusual to include atherosclerotic processes and the end results of various processes in the form of aneurysm under the general term aortitis, it would be a good idea to

treat the subject as the essayist has. It is of great importance to recognize the fact that we have specific inflammations of the aorta which should be recognized before they reach the end results of dilatation and aneurysms. If we keep our eyes open for the recognition of the possibility of the presence of this condition, we can frequently recognize it before these late stages come on, although I am willing to admit that frequently after the end stages occur we miss the condition.

The frequency of luetic aortitis is known to every one since Francis Welch's description many years ago, and the importance of the recognition of this condition lies in the recognition of it before the inflammation passes over to the aortic valves at a time when we can do something in the way of therapeutic endeavor to prevent the occurrence of this condition. After syphilis involves the aortic valves, very little benefit comes from treatment of any kind.

Another important point which probably is not so frequently recognized, is the fact that aortitis occurs as a result of other infectious processes of which there are numerous conditions, such as scarlet fever and many other infectious diseases. In acute rheumatic fever it occurs more frequently than one would suppose, and sometimes it is a matter of great difficulty to make a differentiation between an aortitis of syphilitic origin and one of rheumatic origin. However, if we begin to think of the irregular fevers which come on, the pains described as anginal, which Allbutt calls attention to as being loosely used in medical nomenclature today, our attention will be frequently called to the presence of inflammatory processes in this area.

Without wishing to precipitate a discussion as to the relative importance of coronary sclerosis and aortitis as a cause of angina pectoris, I am inclined to think that Allbutt is right in his contention that they are due to aortitis. In very many cases of patients who present themselves with true anginal pains we find evidence of aortitis on physical examination and receive confirmation of it by the use of the fluoroscope. The fluoroscope will show that there is a pathologic process in the arch of the aorta.

The paper which has been presented has dealt principally with the end results of these conditions, namely, in the diffuse and saccular dilatations of the aorta which may come about as a result of increased pressure from a loss of integrity of the aorta from various pathologic processes. We not only frequently fail to recognize these things in the early stages when we can do more for them, but I am ashamed to say we overlook them clinically in the advanced stages, and there is no doubt that many of these conditions are picked up as a result of routine radioscopic examination.

Dr. Charles L. Martin, Dallas, Tex.—Since I am a roentgenologist, I rise with some hesitancy to discuss a paper in this Section.

A few words regarding technic may not be out of place. The pictures that you have just seen were probably all made by the teleoroentgenographic method, although this point was not stressed. Measurements made on ordinary chest plates taken with the tube target at a distance of some 30 inches from the plate are inaccurate because of distortion. The target plate distance must be at least six and preferably seven feet in order that the width of the shadow of the aortic arch may measure the same as the arch itself. It is also important to remember that the plate must be held against the anterior surface of the chest, since plates made from the back show a definite distortion of the heart and great vessels. The patient must be placed squarely against the plate because a small degree of rotation to one side or the other causes a change in the measurements.

The cause of the wide aortic arch is not always easily ascertained. Arteriosclerosis and syphilis are, I believe, the commonest offenders. The work of Sir Clifford Allbutt has already been mentioned, and I am familiar with the many causes of aortitis described in his book. However, it is important to note that very few of the cases quoted by him were checked up by autopsies.

The widening of the arch in many of the pictures just thrown on the screen was due to arteriosclerosis rather than syphilis. These radiograms showed more evidence of tortuosity than of dilatation. Both processes produce an increase in the width of the arch shadow.

Six separate and distinct causes of an increase in the width of the supra-cardiac shadow have come to my attention. These causes are arteriosclerosis, syphilis, a high diaphragm, cardio-renal disease with hypertension, endocarditis with enlargement of the left auricular appendage, and a dilatation of the pulmonary artery such as is often seen with a patent ductus arteriosus. A high diaphragm often results from obesity alone, although it may be due to ascites, pregnancy, abdominal tumors, etc. The last picture shown was quite similar to those produced by a patent ductus arteriosus, although a syphilitic aneurysm of the pulmonary artery would produce the same appearance.

In concluding my discussion, allow me to emphasize one point. A wide aortic arch does not always mean syphilitic aortitis. This diagnosis should only be made when the history, physical signs and laboratory findings point in the same direction.

Dr. John D. MacRae, Asheville, N. C.—Dr. Martin's discussion pleases me very much. Syphilis is not the only cause of aortitis. These plates truly represented the terminal stages, but there were some which were of the early type, and a striking thing from my point of view is that the two most massive of these aneurysms were in patients who came into the office without having had symptoms directly referable to them. A woman with a universal enlargement of the transverse aorta had an erosion of the skin, an abrasion of the skin over an eroded sternum, and that made her seek advice at the hands of her physician. She was doing housework, washing clothes, making beds, etc., at the time she came for examination. A man with a very large descending aorta aneurysm consulted a physician because of huskiness in his throat. It is a most striking fact that these are cases of aortitis and the aneurysms

may reach a most advanced stage before they are recognized.

Dr. George M. Niles, Atlanta, Ga.—I do not speak from the standpoint of a roentgenologist, but between five and six years ago Dr. Louis Gregory Cole, of New York, told me personally that in 70 per cent of individuals over 45 years of age there would be a certain broadening or sacculation of the upper aspects of the aorta.

Dr. Frazer did not mention the age of the patients. Dr. Cole's remarks set me to thinking, and since that time we have made it a routine in our office of getting a roentgenogram of the heart and aorta of practically every patient. I believe that our observations since then have fairly well borne that out.

I shall ask Dr. Frazer to take note of that in the future and see if he has not found that in individuals over 40 years of age there is a certain sacculation of the aorta at the upper aspects that does not necessarily presage any pathologic changes.

The gentleman from Dallas mentioned that individuals with very short statue nearly always show certain broadening of the aorta or a possible broadening of the heart where the diaphragm is high. However, that does not necessarily mean pathology. It depends a great deal upon the age of the patient as to the view that we take of it. A large percentage of individuals twenty-five or thirty years of age, with a definite sacculated aorta or a definite broadening of the aorta are luetic. Furthermore, my experience has been the same as that of Dr. Frazer. Two of the worst looking aortas I have ever seen were in patients who came into my office for other troubles and gave no definite symptoms pointing to the aorta.

Dr. I. I. Lemann, New Orleans, La.—I would like to sound a word of warning about accepting as normal the wide shadows of aortas in patients past the age Dr. Niles has mentioned. When we consider the frequency with which aneurysms are found at autopsy, we must be careful before accepting the wide aortic shadow as normal. There have been from time to time very large collections of autopsy material in the literature. Osler showed in the Hopkins series of 2,000 autopsies a percentage of aortic aneurysms of, I think, 2.9. A similar series at the Charity Hospital, New Orleans, of 2,000 autopsies yielded 3 per cent of aneurysms. One in every 30 bodies showed an aneurysm of the aorta. There has been published in a recent issue of the *Journal of the American Medical Association* a very large collection of autopsies from the literature, something over 100,000 autopsies, including Osler's collection and my own. In these 100,000 autopsies there was something like 1 per cent of aneurysms of the aorta. One body in every 111 showed an aneurysm of the aorta.

Two years ago, at the meeting of this Section in Asheville, I presented a collection of studies of aortic changes in 100 consecutive autopsies. In that number of autopsies there was but one single smooth aorta and that was the aorta of a new-born child. Curiously, that was the only case in which we were able to demonstrate spirochetes.

The next point I should like to make is that if we go armed with suspicion we shall discover more aneurysms and more diseases of the aorta. The argument that has been advanced is a true and strong one, namely, that the x-ray should not be used alone to confirm the presence of aortic disease but to discover it. We shall be able to do that only if we fluoroscope or skiagraph every patient systematically. Since that is impossible, we ought to fluoroscope every patient who has a persistent chest pain or arm pain. We ought to fluoroscope every patient who has an aortic regurgitation. If we fluoroscope every patient who has a persistent chest pain, or who has an aortic regurgitation, I am quite sure we shall begin to see many more cases of aortic disease.

Dr. J. Birney Guthrie, New Orleans, La.—In a paper read before this Association, in 1919, I called attention to the physical signs and changes in ascites, and made a note of the apparent widening of the aorta in some of the x-ray pictures made before and after evacuation of the ascites. In the course of this work I found that a change in the shape of the aorta was very apparent. Dr. Martin, in my opinion, is absolutely correct in saying that a high diaphragm will give almost invariably a widened aortic shadow, and we should be on our guard against attributing such apparent widening of the aorta to aortitis.

Dr. Lemann makes a just plea for an extensive use of the roentgen ray in the matter of diagnosis, but he has not gone far enough. He and I have been working side by side for many years in the colored clinic, and we have been interested in the question of aortitis and aortic aneurysms. He has collected statistics with which you are familiar. With all the concentration he and I are capable of in a subject in which we are especially interested, we have missed a number of aortic aneurysms in the past. I am not overlooking so many now because of a rule I now follow, namely, in every case that presents the slightest heart failure I consider the question of the existence of aortic aneurysm. Wherever there are symptoms of heart failure, the case should be studied with the roentgen ray.

The symptoms of failure are often prone to be attributed to the aneurysm.

I have seen aneurysms quite as extensive as the one shown on the screen by Dr. Frazer which gave the patients absolutely no discomfort whatever. However, dilatation, with or without rhythmic disturbances, usually occurs in these cases, and the symptoms from which the patient suffers are not pressure symptoms at all, but those of heart failure. This is the key to the management of these cases. Today we do not hesitate to use full doses of digitalis in aortic aneurysm when indicated on account of the heart condition.

Dr. Charles L. Minor, Asheville, N. C.—One of the pictures shown by Dr. Frazer is that of a patient who was sent to me by a very excellent clinician for abscess of the lung. I was able to cure the abscess, but discovered the aneurysm. It was filled with gold wire and was electrified by Dr. Sailer, of Philadelphia, a procedure which

gave the patient two years of comfortable active business life. I discovered this case by physical diagnosis, but I could not have satisfactorily verified it without the use of the fluoroscope. I am a great believer in the wisdom of every doctor's having a fluoroscope in his office and learning to understand it and use it in every case. I have used one since 1899, and it has been an invaluable assistance, and has made a number of diagnoses for me that otherwise I should have missed. It should be used by diagnosticians as they use the stethoscope in all cases. And while no implements can take the place of gray matter, these implements and outfits increase the distance to which our gray matter can reach.

I have a great deal of difficulty in differentiating between the enlargements due to aortitis and those of small aneurysm. I wish the Doctor could give us some help on this point, or that Dr. Barker or Dr. Lemann could give us some points, and show us how we can draw a line between the two conditions and differentiate their prognostic outlook.

Dr. A. L. Gray, Richmond, Va.—Notes of warning have been sounded in discussing this subject and I, too, wish to sound one. I do not believe that with any moderate enlargement of mediastinal shadow we are ever justified in making a diagnosis of aortitis by the plate alone. When you consider the anatomy of the aorta and the mediastinum, you will readily see that a seven-foot plate made antero-posteriorly cannot possibly give you a correct anatomical impression. The aorta arches upward over to the left, downward and backward. When you make an antero-posterior record of these shadows, you have a combined shadow of the ascending portion and the descending portion. Therefore, in order to tell an actual dilatation of the aorta, it is necessary to see each side of each portion. When they overlap, as they do in the plate, you cannot do it.

As to fluoroscopic examination of the chest, I agree with Dr. Minor that it is very much better in these conditions. There is no comparison between the fluoroscopic and plate examinations of the large blood vessels and heart. You may take all the teleoroentgenograms you please and you cannot get a lateral view and see the interval between the ascending and descending portions of this aorta unless you turn the patient around in different ways. The best way to get the exact outline, disregarding the depth, is by the orthodiagram or orthodiascope. Make your tracings with your central ray, passing it along the margin and tracing it out all the way around the heart and around the aortic arch, and what you have is an exact record of the size and shape of the shadow of the heart and aorta. A diagnosis of syphilitic aortitis is a very difficult thing to make by the roentgen ray alone.

Dr. Frazer (closing).—These cases were all fluoroscoped, so that we were able to look at the patient in both an anterior position and an oblique position. I did not mean to imply that all these cases were syphilitic. However, a number of them were. We selected cases representing the different types met with, showing, in the first place, some of the larger aneurysms which manifested no symptoms to speak of, and in the second place, the more moderate dilatations which caused definite symptoms, such as Dr. Guthrie referred to, of heart failure, which also presented some slight signs readily overlooked.

I purposely called the paper "aortitis" because I do not know where an aortitis ends or where fusiform dilatation begins. I grouped them with reference to the importance of recognizing them as early as possible. We know that many of these cases go from one man to another without being recognized. We also selected plates and compared them with the plates of other patients of the same age. We find moderate dilatation of the aorta in persons passed middle age, and whether they are always pathologic or not, I am unable to say. The cases I presented had definite symptoms referable to the heart.

TEMPERATURE VARIABILITY IN CERTAIN APPARENTLY NORMAL CHILDREN*

By Frank C. Neff, M.D.,
Kansas City, Mo.

In making physical examinations of children one is aware of the frequency that unexplainable temperatures from 99 to 100°+ F. are encountered. One concludes that normal temperatures have a wider range than 98 to 99° F. or that higher temperatures are sometimes due to obscure factors not generally recognized.

Abt[1] states that the rectal temperature varies in healthy children with the distance the thermometer is introduced. He believes that the temperature of young infants is influenced by bodily exercise, restlessness and crying. From his personal observations he followed through infancy and childhood children who were perfectly healthy and who constantly showed a temperature of 99, 99.5 and 100.5° F.

Starling, in his recent edition of "Physiology," concedes a normal diurnal variation of 0.7° C., due to changes in movement and tension of muscles.

Moro found that when the legs are active the temperature by rectum will be raised, and when the arms are exercised the axillary temperature will be raised, and that there are normal daylight variations of as much as 1° C.

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*Read in Section on Pediatrics, Southern Medical Association, Fifteenth Annual Meeting, Hot Springs, Ark., Nov. 14-17, 1921.

There are many factors which reasonably affect the heat-regulatory mechanism of the body, which will not be considered in this paper.

In a consideration of this subject one could scarcely omit the influence of dentition on the temperature. I will merely mention the recent opinion of Abels,[2] of Vienna, who tells mothers that teething is not the cause of fever, but that fever causes dentition to become more rapid.

The question with which this paper is chiefly concerned is that of the effect upon the temperature of the frequently encountered emotional instability in children. An impression exists among the laity and certain physicians that an outburst of temper and crying will cause fever. Still and many others regard the temperature in children as much more unstable than in adults.

In a personal communication from Dr. Crile,* of Cleveland, he states that fever is produced when animals are subjected to fear, even without any consequent exertion of the skeletal muscles. In one group of three rabbits he found constantly that the temperatures became elevated after fright, averaging 1.32° C. In two other rabbits he found an average elevation of .6° C. after fright. He saw an average increase of one and one-eighth degrees in a ward of fifteen children as a result of the excitement following a Fourth of July celebration.

For several years the writer has been interested in the problem of slight fever in those children found to have no explanation therefor after a physical examination. It is obvious that temperature measurements should be made in a uniform way and the accuracy of the thermometer checked carefully. Taking it in the rectum is, of course, the approved method, and its introduction a sufficient distance for a definite time an important detail.

In the beginning of the observations which form the basis of this work we had in mind the recording of children proven normal and the comparison with subsequent records made following periods of excitement, crying or fright. For the past three months the temperature of all children frightened or crying at the introduction of the thermometer into the rectum was compared with the temperature taken ten to forty minutes later. In the interval a simple physical examination was made, and in other instances further diagnostic measures were employed such as securing a specimen of urine or blood, a Schick or Pirquet test, inspection of throat and ears, etc. The positive findings were charted. Where the initial temperature was above 99° F. the supposed cause of it was recorded. As a matter of fact, few of the children proved to be normal.

The technic of temperature recording was standardized, all this work being done by one graduate nurse,* who gave her whole time to it. The effort was made to take the initial temperature before the child became excited or frightened, before entering the examining room. In many instances it was impossible to anticipate the crying period. The children were brought various distances, so that the element of exercise and fatigue complicates the problem.

THE CHILDREN SHOWING AN ELEVATION OF TEMPERATURE AFTER EXAMINATION

Age		
1 year and under		17
1 to 3 years		30
3 to 5 years		9
5 to 7 years		6
7 to 12 years		10
		72
Race		
Mexican		1
Italian		2
Negro		5
Jewish		19
American		45— 72
One child, a Mongolian idiot, had a reduction of .4° after examination		1— 1
Children with no change following examination		173— 173
Total examined		246

With 35 children the recording was repeated for an average of three days.

VARIATIONS IN TEMPERATURE IN 72 CHILDREN

Before Examination		After
98.6 to 99	19 cases	Average elevation ....0.43° F.
99.2 to 100	35 cases	Average elevation 0.34
100.2 to 101	9 cases	Average elevation 0.35
101.2 to 103.8	8 cases	Average elevation 0.50
	Minimum elevation	.....0.20
	Maximum elevation	.....1.00

*The writer wishes to express his appreciation to Dr. George Crile, of Cleveland, for details of studies of the effect of fear upon the temperature.

*Miss Roscoe, who followed these children at the office, the Swope Center and the Jewish Dispensaries.

CHART SHOWING VARIETY OF DATA OBTAINED IN

Line No.	Name	Sex and Race	Age	Children in Family	Neuropathic	Nutrition Wt. for Ht.	Tonsils Adenoids	Glands	Teeth	Pirquet	Source of Elevation
1	Joy M.	Fem. Amer.	3 yrs	Only	+++	Normal	Large red	Neg.	Neg.	B Neg. H Neg.	Pyelitis
2	Irene X.	Fem. Ital.	2½ yrs	3	+++	2 lbs. underwgt	Large	Neg.	Neg.	B Neg. H Neg.	Furunculosis fatigue pos.
3	Jeane S.	Fem. Jew	19 mos	2	+++	2 lbs. underwgt	Red	Neg.	Neg.	B Neg. H Neg.	Ileocolitis Stomatitis
4	Wm. B.	Male Negro	22 mos	3	0	2 lbs. underwgt	Small	Neg.	Neg.	B Neg. H Neg.	
5	Stephen T.	Male Amer.	7 mos.	Only	+	3 lbs. underwgt	Neg.	Neg.	Neg.	....	Mongolianism
6	Carl H.	Male Amer.	2 yrs	2	+++	Normal	Neg.	Neg.	Neg.	B Neg. H Neg.	Neuropathic diathesis
7	Rosie Z.	Fem. Jew	11 yrs	3	+++	2 lbs. above wt	Infected	Pc. E	Neg.	B Neg. H Neg.	Tracheobronchitis
8	Rosa LR.	Fem. Ital.	7 yrs	4	+++	Normal	Moderate	Neg.	Few Car.	B Neg. H Neg.	Acute Rheu. Pyelitis

EFFECT OF FRIGHT OR EXCITEMENT ON

Line No.	Name	Sex and Race	Age	Neuropathic	Children in Family	Nutrition Wgt for Ht	Tonsils Adenoids	Glands	Pirquet
1	Mary J.	Fem. Amer.	1 year	++	3	Normal	+	+	— —
2	William B.	Male Negro	22 mos	0	3	2 lbs. underwgt	Small	0	B Neg. H Neg.
3	Avalon S.	Fem. Jew	11 mos	++	Only	Normal	Large red	0	B Neg. H Neg.
4	James F.	Male Amer.	5 weeks	++	Only	Normal	0	0	— —
5	Simon R.	Male Jew	2 mos	+++	4	Underwgt	0	0	— —
6	Pauline B.	Fem. Amer.	17 mos	+++	2	2 lbs. underwgt	0	0	— —
7	Jeannette F.	Fem. Jew	7 years	++++	Only	Normal	Out	0	B. Pos. H. Pos.
8	Sol L.	Male Jew	4 mos	++	2	2 lbs. underwgt	0	0	— —
9	Geraldine B.	Fem. Amer.	3 mos	+	Only	3 lbs. underwgt	0	0	— —
10	Joy M.	Fem. Amer.	3 years	++++	Only	Normal	Large and red	0	B Neg. H Neg.
11	Dorothy W.	Fem. Amer.	1 year	+	2	Normal	0	0	— —
12	Lois N.	Fem. Amer.	3 years	++	Only	7½ lbs. underwgt	Infected	0	B Neg. H Neg.
13	Bernice K.	Fem. Amer.	8 mos	+	Only	2 lbs. underwgt	0	pc.	— —
14	Francesca R.	Fem. Mex.	7 years	+++	?	Underwgt	Infected and red	pc.	— —

THE TEMPERATURE MEASUREMENTS OF 246 CHILDREN

Rectal T. Before E.	Time	Crying	Fright	Rectal T. After Ex.	Time	Crying	Fright	Variation	Remarks	Urine	Line No.
100	10:20	Yes	Yes	100.4	10:40	Yes	Yes	.4	Extremely excitable; cries constantly in office	6-8 pus c	1
98.8	4:05	Yes	Yes	99.4	4:15	Yes	Yes	.6			
100.4	4:00	Yes	Yes	101	4:15	Yes	Yes	.6	Easily excited; objected to exam. Neuro. diathesis	Neg.	2
100.2	3:45	Yes	Yes	101.6	3:55	Yes	Yes	.4			
99	3:55	Yes	Yes	99.4	4:15	Yes	Yes	.4			
102.8	4:00	Yes	Yes	103.4	4:15	Yes	Yes	.6	Extremely excitable; cries easily. Wasserman 3 plus	Neg.	3
102.2	3:00	Yes	Yes	102.4	3:10	Yes	Yes	.2			
99.8	4:30	Yes	Yes	100.4	5:00	Yes	Yes	.6			
98.2	12:45	Yes	Yes	99	1:20	Yes	Yes	.8	Previous rickets. Referred to orthopedic	Neg.	4
100.4	2:42	Yes	Yes	100	3:10	Yes	Yes	—.4	Crying from fall at time of taking first tempterature	Neg.	5
100	3:20	Yes	Yes	100	3:40	Yes	Yes	None	Very excitable child; no increased temperature as expected	Neg.	6
100	12:50	No	Yes	101	1:30	No	Yes	1.0	Easily excited. Mental backwardness. Colds constant.	Neg.	7
100.4	3:00	Yes	Yes	100.4	3:40	Yes	Yes	None	Easily excited; pain in legs and groin. W. B.C., 18,600. Hb., 60%	8-9 pus c.	8
100.4	3:15	Yes	Yes	100.4	3:40	Yes	Yes	None			

CHILDREN WITH NORMAL TEMPERATURE

Rectal T. Before Ex.	Time	Crying	Fright	Rectal T. After Ex.	Time	Crying	Fright	Variation	Remarks	Urine	Line No.
98.8	2:30	Yes	Yes	99.4	2:45	Yes	Yes	.6	After crying from exam. mouth. Mongolianism	—	1
98.2	12:45	Yes	Yes	99	1:20	Yes	Yes	.8	Previous rickets Referred to orthopedic	Neg.	2
98.6	12:55	Yes	Yes	99	1:30	Yes	Yes	.4	After examination Eczema	Neg.	3
98.8	1:00	Yes	Yes	99.4	1:45	Yes	Yes	.6	Cried throughout examination Wassermann mother 4 plus	—	4
97.8	1:34	Yes	Yes	98.2	2:04	Yes	Yes	.4	Cried all the time in clinic Improper and irregular feeding	—	5
98.6	10:37	Yes	Yes	98.8	10:50	Yes	Yes	.2	Crying from examination Teething	—	6
98.8	11:10	Yes	Yes	99	11:30	Yes	Yes	.2	Objected strongly to examination Uncontrolled child	Alb	7
98.6	12:45	Yes	Yes	99	1:00	Yes	Yes	.4	After crying from examination	—	8
98.4	1:30	Yes	Yes	99	1:45	Yes	Yes	.6	After crying from examination	—	9
98.8	4:15	Yes	Yes	99.4	4:55	Yes	Yes	.6	Cried all the time in office Neuropathic diathesis	6-8 pus c.	10
98.2	12:45	Yes	Yes	98.4	1:20	Yes	Yes	.2	After Exam. Wass. Neg. Little's disease	Neg.	11
98.8	2:00	No	No	99.2	2:32	Yes	Yes	.4	After fretting from Exam. Tracheo-bronchitis. Neuro. diathesis	Occas. pus c.	12
98.6	12:55	No	No	99	1:05	Yes	Yes	.4	After crying from Exam. and Wass. Fontanel closed	—	13
98.2	11:17	No	No	98.6	11:30	No	Yes	.4	After Exam. Urinated during Ex. Easily excitable child	—	14

CRYING AND FRIGHT

Total number crying	158
No change in temperature	95
Elevation	63—39%
Total number not crying	88
No change in temperature	79
Elevation	9—10%

FATIGUE POSTURE (No Emotion)

Without elevation	1 cases
With elevation	3 cases

UNDERWEIGHT (FROM 2½ TO 20 LBS.)

Crying During Examination		Not Crying	
No change	26	34	
Elevation	21 (44%)	7	(17%)
	47	41	

There is no relation of crying and fright to number of children in the family.

75 % of 1 child family cried.
70 % of 3 child family cried.
80 % of 4 child family cried.
55 % of 5 child family cried.
85 % of 6 child family cried.
62% of 7 to 10 child family cried.

With the exception of manifest acute inflammation of tonsils, there was no constant relation between the appearance of the tonsils and the initial elevated temperature.

CONCLUSIONS

(1) In certain children it is difficult to find the explanation for slight elevations of temperature.

(2) After the examination of 158 crying children the temperature was found elevated from .2 to 1.° F. in 39 per cent.

(3) With 88 children similarly examined but not crying, there was a like elevation of temperature in 10 per cent. Some of these were apprehensive or excited.

(4) In definitely underweight children the percentage showing variation after examination was somewhat higher, both in the crying and non-crying group.

(5) It would seem for purposes of accuracy that the temperature of the child should be taken if possible when no excitement has occurred.

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DISCUSSION

Dr. Robert A. Strong, Pass Christian, Miss.—If any of us have gray hairs they might be attributed to running down the cause of some of the obscure elevations in temperature in children.

A case of this well known type came under my observation just a short while ago. The child was the grandson of a very eminent retired practitioner of medicine who was much perturbed but yet not excited. I mention this to show that I was not harassed by a neurotic mother as one often is in these cases. The child had been running a temperature between 99 and 99.4. We conducted the usual diligent search and found no apparent cause. The slight elevation continued. One Sunday afternoon when the children of another son, who was a doctor, were visiting and were engaged in romping games on the front lawn, someone suggested that we take the temperature of all the children present. We called them all in and did. I think there were about eight or ten children in this group and the temperatures ranged between normal and 101. After this we decided to discontinue taking the temperature of the child that we were observing. Doctor Neff's observations in his group of cases convey valuable information.

Dr. J. Ross Snyder, Birmingham, Ala.—This is a study not usually conducted. I do not feel that Dr. Neff has proven anything as yet, but he is on the right trail and I hope he will continue his work. This is probably a preliminary report. We shall be interested in a more complete report later on carried on with a larger number of children.

Dr. J. O. Elrod, Forsyth, Ga.—I never investigate temperatures of normal children, but I have one child who for the last nine months has been running a temperature varying between 99 and 100. I referred this child to Dr. Funkhouser last May. Dr. Funkhouser and I could make out only one reason for this child's above-normal temperature and that was a nervous, nagging mother. I was hoping that Dr. Neff was going to tell us some real cause for this rise in temperature, so that I might be able to conquer it in this child. It causes the mother more trouble than it does the child.

The child is absolutely normal except that about every two months it runs a little attack of bronchial asthma. On account of that bronchial asthma I had its tonsils removed. They were in bad shape and I thought it might relieve the temperature also. However, it had no effect on either in any way. We tested out the child with proteins and found he was sensitive to tomatoes. We stopped letting him have them, but he still has the asthma. The other substances to which he was sensitive were things that as far as we could find he never came in contact with. As Dr. Snyder said, I hope Dr. Neff will be able to give us something a little later on regarding the reason for these repeated elevations of temperature.

Dr. Neff (closing).—I realize that this study is not complete. It should be gone into in more detail and that will take a life time.

GLOSSOPYROSIS*

By K. Heberden Beall, M.D.,
Fort Worth, Tex.

In this brief communication I wish to call attention to an unusual symptom, burning of the tongue, which I have seen in association with other symptoms. In

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the cases here reported it was the sole symptom and the complaint which led the patients to seek medical advice.

I wish to report four cases in which, to reiterate, burning of the tongue was absolutely the only symptom.

Case 1.—A man, age 53, grocer, came to me because of an intense burning of the entire tongue of three months' duration. The burning was constant unless relieved temporarily with salt. The patient had found that holding a piece of rock salt in his mouth kept the burning somewhat in abeyance. This man had always been well, and had noticed no other sign of ill health, even since the onset of the burning.

His appearance was healthful and a careful examination did not disclose any abnormality which might produce this symptom. His tongue was normal in appearance, and at no time had been inflamed. There had at no time been any excess or deficiency of saliva. His diet was an ordinary one, except that he had never drunk milk and for the last several years he had rarely eaten meat. He was advised to eat meat daily and to take two quarts of milk every day. Two months later he wrote that he had been relieved.

Case 2.—A lady, just past middle age, had for years struggled against nephritis and pulmonary tuberculosis. Her condition was good except for an almost intolerable burning of the tongue which had plagued her for about a year, and concerning which I was consulted. Examination showed a nephropathy and an old tuberculosis. Because of the state of her kidneys she had refrained from meat for a long time, and for quite a few months had taken her milk skimmed, believing that her digestive apparatus could not handle the cream. She was persuaded to use whole milk and to take a little more liberty with her diet, and in a few weeks was rid of this very great annoyance.

Case 3.—A woman of 38 presented herself with a history of burning tongue for a year. As is true of all of these cases, there was no history of inflammation of the tongue, or of salivary disturbance, and the appearance of the tongue was normal. She stated that for a number of years she had had stomach trouble, but that she had been cured by a diet to which she was still adhering. This diet was meatless and milkless. She was advised how to enlarge her diet. She promised to report, but has not done so.

Case 4.—This was an ex-soldier, age 29, who went to Mexico after the Armistice. While there, because of the scarcity of good food, he had lived almost entirely on fruits for almost a year. For three months he had had a severe burning of the tongue. Like the other cases reported here there was no history of an excess or deficiency of saliva, or glossitis. His tongue was perfectly normal in appearance. I did not see him again.

Here, then, are reported four cases of burning of the tongue in adults with dietary faults. Whether these dietary faults are causal, I shall not say. Many will see in these cases early cases of pellagra in which, of course, the burning mouth, gullet, feet, or what not is very common.

SUMMARY

Four cases are presented in which a constant burning of the tongue was the sole symptom and in which the physical examination was negative. In all of these cases there was an absence from the dietary of meat and whole milk. Two cases were lost sight of. The other two were relieved of the burning of the tongue by the addition of meat and whole milk to the diet.

DISCUSSION

Dr. George C. Mizell, Atlanta, Ga.—This is a subject I have been interested in for a number of years, having seen a number of cases presenting this symptom. Usually there are some other symptoms, and I note in Dr. Beall's presentation that his cases have other pathology than would be indicated by the burning of the tongue. He stated, and very much to the point, that some would see in these cases early pellagra. We can see a reason for that. Dr. Beall's observations tend to point to diet as the cause of the pyrosis and some of us can confirm this viewpoint. It appears that diet plays the same part in producing the glossopyrosis in these individuals that it does in producing the same symptoms in pellagrins. It may be that in pellagra it is only a secondary cause of symptoms, but in such cases as Dr. Beall has reported low protein diet appears to be the primary cause of the condition. We have pointed out this relationship of diet to glossitis and gingivitis in several papers.

To cover these conditions as a whole, for undoubtedly Dr. Beall's cases will fall in one of three groups, we can classify them according to what we see in the tongue and we should have an understanding of the underlying causes of glossopyrosis, whether it be in pellagra or in association with some other pathology.

In my observation this symptom may occur in tongues which present no gross pathology as well as in those which present gross pathology. (We are not discussing well recognized types of glossitis.) Those presenting gross pathology tend to be of two clinical types. The first and most important is the red tongue, sometimes called the bald-tongue of pellagra, although this tongue is not seen in pellagra alone. The second clinical type is the tongue which has hyperemic papillae, situated usually on the tip and margins of the tongue. Sometimes these hyperemic papillae are difficult to see. If you have a white-coated tongue, it is easy to detect them, but if the tongue is clean they are quite difficult to make out. A third type shows no gross pathology. The first mentioned type is by far the most common. In addition to the glossopyrosis these patients may complain of pyrosis of the skin, intestinal pyrosis, and there may be pyrosis in the female vagina. In fact, all the epithelial tissues may burn. In these cases there is intes-

tinal fermentation; the urine is low in specific gravity, and there is a marked increase of the intestinal flora found in intestinal fermentation. I do not use fermentation and putrefaction as synonymous terms. There is also a slight increase in hydrogen ion concentration.

Type 2 appears in those cases in which intestinal putrefaction is marked, and we have the usual findings in such cases, chief of which is the flora of intestinal putrefaction. Between these two groups we have the one merging into the other both as to intestinal findings, appearance of tongue and symptoms.

Type 3, those in which there is no macroscopic pathology of the tongue in evidence, in my observation does not appear to be related to a balanced protein ration. Variation in the protein ration has not influenced the symptom in observations extending over a period of twelve months or more. A peculiarity of one patient was that sugar was the only thing that would relieve the glossopyrosis and that only for a few hours.

The glossopyrosis in both types 1 and 2 is cured by a high protein ration. Relief in type 1 is hastened by giving hydrochloric acid and is aggravated by alkalies. In type 2 the symptom is benefitted by the use of alkalies in connection with high protein diet.

Dr. Stewart R. Roberts, Atlanta, Ga.—I am glad some one has had courage enough to swing back to a clinical study of the tongue. Butlin's book on the tongue is out of print, but it is a classic which should be in each of our libraries.

I wish to report a case of a woman whose metabolism was low, but who did not have pellagra. Fourteen years previous to the time I examined her she had an acute glossitis. The epithelial coat of the tongue sloughed off and she was left with the base. The tongue was hyperesthetic, and hot food or a hot drink gave her an acute pain when she slid the tongue around the mouth and touched the teeth. She was built up and put in as good condition as possible but there was no change in the tongue. The only thing that gave a reasonable degree of comfort was to live on lukewarm food and drink. The trouble seems to have been centered in the papillae of the tongue. Only some of the remnants of the circumvallate papillae posteriorly were seen at all.

We have several interesting things that may occur in connection with the tongue of chronic tobacco chewers, but not in those who chew tobacco once a day. We have the relatively clean or velvety tongue of the patient with pernicious anemia. Sometimes it may be one of the first symptoms of a pernicious anemia. Then we have the coatless beefsteak tongue of a pellagrin. The pellagra is in relative submergence, and the pellagra tongue is not so valuable as it was ten years ago.

The pediatricians are becoming very much concerned about painful extremities in young children. There have been several articles written upon this subject. Dr. Weston, of Columbia, South Carolina, wrote an article upon it two years ago. Whether this is a functional sensory condition that amounts to nothing and Dr. Beall's cases come under this heading, I do not know. Our own case showed that there can be sloughing and a prominent exposure of the musculature of the tongue with glossopyrosis.

Dr. Otis S. Warr, Memphis, Tenn.—I am reminded of a case that came under my observation a few days ago. A woman, 50 years of age, for three years had complained incessantly of an intense burning in the tongue. If I understood Dr. Beall correctly, he limited his discussion to the tongue that is apparently normal. This patient showed no pathology in the mouth, neither could we find any pathology anywhere after careful examination. She laid the blame upon a plate of false teeth which she had worn for three years. The first plate had been made of some form of rubber and she had the idea that the burning was caused by the rubber. Several attempts were made to correct the trouble and she finally had an aluminum plate made without relief. She had even discarded her teeth altogether and still had had no relief. If this is a case of glossopyrosis, it is the first one that has come under my observation. I should like to ask Dr. Beall if he has discovered a constant cause for this very unusual symptom. The evidence is not sufficient at this time to justify placing glossopyrosis in the category of a clinical entity.

Dr. George Dock, St. Louis, Mo.—What I am about to say does not apply so well to Dr. Beall's case as to certain other cases. I refer to those cases where there is a reflex irritation from diseased teeth. If in cases like this the teeth, which may look entirely well, are tested as a dentist tests them with heat and cold, electricity, etc., I venture to say that in some of them diseases will be found which can be treated with quick cessation of the symptom.

Dr. E. Bates Block, Atlanta, Ga.—I wish to mention two causes for this condition. I do not say there are not others. One case I have seen in a patient who had been eating fresh figs, producing a distinct burning of the tongue without any apparent glossitis. The other cause is a hypoacidity of the stomach, a deficiency in hydrochloric acid.

Dr. Charles L. Minor, Asheville. N. C.—In the formation of our medical nomenclature we have to be very careful. The term "glossopyrosis" may be perfectly correct, but as "pyrosis" has already a wide use it may be misunderstood. I think it is an unfortunate one, and hope the author of the paper will discuss the nomenclature when he closes the discussion.

Dr. Walter E. Vest, Huntington, W. Va.—I should like to ask Dr. Beall whether his patient was suffering from tuberculosis. The patient may not have had any other symptoms except this burning symptom of the tongue, but he did not make that point clear in the history of the case.

Dr. Beall (closing).—In these four cases the teeth were in a fair state of preservation. They were looked over carefully as possible etiologic factors, and were not at fault.

PREVALENCE OF ENTAMEBIC DISEASE: DIAGNOSIS AND TREATMENT*

By G. C. Kilpatrick, M.D.,
Mobile, Ala.

Dysentery unclassified clinically or etiologically has been a scourge of the human family wherever people have gathered together since time out of mind or for thousands of years. Until recently it was considered a tropical, or at most, a subtropical disease and not a probable menace to the health of people living in a temperate climate, although an occasional outbreak has been known to occur in such localities.

The study of dysentery from an etiological standpoint has received more scientific attention in the past twenty years than ever before, due to recognition of tropical medicine by the best colleges and a discriminating application of bacteriological technic in the study of pathogenic protozoa by protozoologists who have recently astounded the medical profession by their statistics.

To Lambl belongs the honor of being first to see the ameba three-quarters of a century ago, and his suspicion that his discovery had an etiological significance in differentiating a type of dysentery seems to have been supported by Loesch's description of a case seen by him in 1875. About this time, Grassi made the valuable discovery of amebic cysts in infected stools, but misinterpreted the importance of his find as an aid to diagnosis because he saw them in well people along with the sick. Osler was first to discover the ameba in America in 1890. He thereby aroused interest among protozoologists, who have since made important discoveries from time to time. No one among them is so deserving of honor as Schaudinn, whose work was epoch-making and who gave his life to experiment.

Incentive to study all forms of disease, particularly infectious types, is always tremendously stimulated by war: first, because war could not continue if methods were not devised to prevent or check disease; and second, because so many conditions favor the dissemination of diseases. A perfect example was found in the World War, where people from every climate journeyed to a particular area and intermingled in an unprecedented fashion. As a result of this situation we are today facing a serious menace to the public health of the country through the return to civil life of men infected with the endameba dysenteriae overseas, and who are now carriers of the parasite.

According to the findings of Kofoid and his colleagues, who made a systematic examination of sufficient numbers of returned soldiers after the Armistice to justify correct conclusions, there is an incidence of E. dysenteriae of 20 per cent among the two million overseas men. Those remaining at home show 4 per cent, a number in itself higher than would have been suspected. When the fact is recognied that the hygienic status of the soldier's life in France, except during actual combat, was in general, and especially as regards food, about as good as it was in the states, it is easy to see what a colossal epidemic of amebiasis occurred within the short period of about one year, and how dangerous these men who think themselves physically fit are to the country in general and the South in particular, where the disease is in part endemic.

It must be understood that amebiasis, which is here used to denote the "carrier," represents that stage of infection with E. dysenteriae characterized by an occasional attack of very mild and transient diarrhea, alternated with slight constipation and accompanied by slight indigestion, malaise and abdominal pain, almost unnoted by the patient and far too often unrecognized by the physician. Thus the fact is overlooked that infection by E. dysenteriae (in itself a misleading name) produces an extraordinarily small percentage of dysenteric symptoms in proportion to the number of persons who harbor the parasite, principally because of a failure of the medical profession to grasp the import of recent figures

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on the spread of the disease in this country.

However, stools of mucus and blood, accompanied by severe tenesmus and fever, are classical symptoms of some form of dysenteric infection. When called upon for the relief of these symptoms, the physician needs no urging to bring all diagnostic aid to bear in differentiating the type. The comparison discloses a very discomforting situation which will cease to exist when we realize, as Dr. Craig says, that

"amebic dysentery is a comparatively rare condition; but amebic diarrhea is a very common one, and becoming more so,"

and that most of the cases of liver abscess develop in the wake of symptoms of the mildest type exhibited months and even years previously. The two phases of the life cycle of E. dysenteriae are known as the vegetative and encystment stages. In the vegetative stage the endamebae have the pathogenic faculty of concentrating at a definite point in the colon and attacking the epithelial cell with pseudopodia and perhaps a cytolytic ferment till it is destroyed. They then invade the tissues and localize in pockets and sinuses situated in the majority of instances near the cecum and in the sigmoid, where the undermining of the mucous membrane continues and the deposit of cysts begins. During vegetation this parasite is harmless as an infective agent, since it has no existence outside the human body.

The cyst on the contrary may, under favorable circumstances, live in water and soil for considerable periods and is the only source of infection for the disease. The chief disseminator of the infection is probably the fly. The cysts are unaffected by passing through the gut of the insect and are deposited in the "fly-specks" in a very few minutes after ingestion. Thousands of cysts also cling to the feet of the fly, but the danger of infection from this source is lessened by the early death of the cyst as a result of becoming dry. In regions where sanitary precautions are not the rule, and particularly where human excreta is used for fertilizing truck farms, uncooked vegetables and fruits constitute a serious source of infection to the consumer in the distant market as well as locally.

The differentiation of the Endameba dysenteriae from the E. coli is exceedingly difficult under certain circumstances. However, the former invariably contain red blood corpuscles if accessible to them, while the E. coli rarely ever ingests them, is much slower in locomotion and possesses a granular pseudopodia while that of the E. dysenteriae is clear. The E. nana is so small that it is rare that one is capable of ingesting a corpuscle. Its endoplasm also presents numerous vacuoles. To the unskilled, the differentiation of the cysts of E. dysenteriae from the E. nana is unlikely *per se*, but the great number usually seen of the latter in the stools is a source of identity. Emetin may also furnish material aid in diagnosis. The cyst of the E. coli differs very greatly from the other two. It is large and oval and has at least eight nuclei, while the latter are spherical and usually contain four nuclei.

The best stain in use for the detection of cysts is probably the Donaldson iodin-eosin stain, which is made as follows: a 5 per cent solution of potassium iodid saturated with iodin, one part; a saturated solution of eosin, one part. Use normal salt solution in making up the proportions and keep in separate containers. When ready to use, take two parts of the eosin stain and add to one part of the iodin-potassium-iodid solution diluted further with two parts of normal salt solution. Prepare the stain fresh every morning and use as follows: a solid portion of feces should be chosen for examination; rub a small portion freely in a drop of normal salt solution till dissolved, then transfer to a drop of the stain, make a thin film and examine under a cover glass. The cysts will appear as a spherule, yellowish-tinted upon a red background with nuclei which are stained deep brown. Continued change of focus is necessary to bring out the nuclei.

TREATMENT

In treating dysentery we must not forget that there is a natural tendency toward recovery, proved by the comparative

infrequency of fulminating types and the extraordinarily large number of carriers in comparison to those who present themselves with the clinical dysentery type of the disease. Post-mortem examination of infected persons also often show ulcers that have healed and many that are in process of healing where there were no symptoms or knowledge of the presence of the disease during life. Therefore, it is of extreme importance that the physician be not misled by evidences of rapid recovery under treatment to believe his patient cured without careful examination of the stools for the cysts. In discussing the treatment of entamebic disease, the fact may be succinctly stated that ipecacuanha will cure 99 per cent of all cases if persistently and correctly used.

In the treatment of acute cases of amebic dysentery, the patient should be placed in bed and a laxative, oil or saline, administered. If the case is of the fulminating type, give one-half grain of emetin hydrochlorid intravenously, injecting very slowly to reduce toxicity, and repeat the dose in six or eight hours if necessary. Apply hot compresses to the abdomen and relieve pain by administering small doses of morphin sulphate by needle. In ordinary cases the emetin should be given subcutaneously (given intramuscularly it is very irritating) in one grain doses repeated every twenty-four hours. The diet should consist of liquids excepting milk till the infection shows response to treatment. Emetin given subcutaneously and particularly intravenously is accumulative and capable of producing a peripheral neuritis ranging in severity from muscle weakness to paralysis, and death by heart poisoning, and should not be relied on to cure any case of infection if cysts are present in the stools after ten days.

The treatment of chronic dysentery greatly differs from that employed in the acute form and is much more elaborate, requiring the employment of the powdered ipecac root, according to the best experience of the physician prescribing. Thorough preparation of the patient mentally and physically should be exacted. He should give his entire co-operation; be placed in bed to remain till the treatment ceases; be given a dose of oil preferably, and required to use a bed pan. His diet should consist throughout the treatment of fluids except milk, which should not be given during the first week.

On the day treatment begins do not allow the patient to take anything into the stomach after 5 or 6 p. m. and continue this regimen daily throughout. At 8:30 or 9 p. m. give fifteen drops of the tincture of opium. About thirty minutes later give twelve salol coated pills, containing five grains each of powdered ipecac root, urging the patient to swallow them rapidly. During the early hours of the morning there will be a tendency to vomit, but cold cloths to the throat and absolute quiet will tide the patient over. Each day reduce the dose by one pill till the patient ceases to take the drug on the twelfth day. Ipecac is a powerful hydragogue cathartic, but patients become habituated to large doses after a few days. However, if the action of the drug is very severe, the physician must not allow his sympathy or apprehension to sway his judgment by reducing the dose or changing his regimen under ordinary circumstances. This is one certain way of eliminating the infection of Endameba dysenteriae, and it is quite likely that much effect toward that end occurs through the hydragogue action of the drug.

During treatment the stools must be watched for the passage of undissolved pills. If there is a tendency in this direction, one end of the salol coating should be pierced with a pin. At least fifty of the pills should dissolve in the intestinal tract during the treatment. Should cysts appear in the stools some time after the administration of the ipecac, the entire treatment should be gone over again.

Some persons have an idiosyncrasy for ipecac in any form, being unable to take safely a single dose of the drug. In such case, local treatment in the form of irrigations containing silver nitrate, thymol or the fluid extract of chaparro amargosa, are popularly used. In giving the irrigations, the knee-chest position is best be-

cause the bowel can be more easily distended, and this is very essential. Not less than two liters, and preferably three, should be used. Women are often quite able to take four. Two enemas daily in chronic cases is quite sufficient, but acute cases are best not treated by enemas at all, certainly not of large volume, till somewhat abated. While silver nitrate is considered the most amebicidal enema, thymol in the following proportion is very efficient: thymol, 25 Gm.; alcohol; glycerine, 250 c. c. M. Sig.: Ten cubic centimeters to a liter of water (Musgrove). Internally, the patient should be given one or two teaspoonfuls of F.E. chaparro amargosa three times daily.

CONCLUSIONS

The fact that Endameba dysenteriae can not multiply outside the human body, and that the "progress of the contagion is very slow under normal conditions of sanitation," does not lessen the danger to the public health today while one at least in every twenty-five in the United States is infected. The danger is great so long as physicians fail to recognize amebic diarrhea, or at best attempt to eradicate it with emetin.

Emetin hydrochlorid is a very dangerous drug. Its chief value is in the treatment of infections in direct proportion to the acuteness shown, and as a diagnostic measure, and it should be so used only.

Less emetin and more powdered ipecac root means more cures and fewer liver abscesses.

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S. K. Simon Tice's Practice of Medicine

DISCUSSION

Dr. Sidney K. Simon, New Orleans, La.—Dr. Kilpatrick has treated the high points of the subject quite lucidly I think. One of the important medical outcomes of the recent war was the knowledge gained in regard to the protozoal infections of the intestinal tract. The experiments conducted by a group of British observers showed a wide prevalence of entamebic infection even among healthy soldier units. Similar observations were recorded by Kofoid and others in this country. These showed that about 5% of the soldiers returning from the Western Front, who had never experienced any intestinal disturbance, harbored Entameba histolytica in the stools. The danger from these so-called contact carriers, that is individuals who harbor the infection without showing any evidence of the disease, is at once apparent when one considers the wide distribution of these individuals in every section of this country. At an early stage of the war the English recognized the importance of freeing the cyst bearer or carrier of this infection because of the future danger to the civilian population. It soon became apparent to these observers, however, that emetin given in doses of one grain every 24 hours was not effective in removing the infection. The ineffectiveness of emetin in this respect had been made clear to many even before that time. As one of the earlier and more enthusiastic users of ipecac I had grasped at the introduction of emetin as a most desirable addition to our therapy. Still it could not be overlooked that the toxic effect of emetin did not permit of its use in sufficient dosage to kill off a well intrenched entamebic infection. This conviction has grown with years, and I have stuck to the old time powdered ipecac root, in the treatment of all cases whether active or inactive, and believe it to be the one reliable, specific agent in handling the infection.

Dr. J. B. Fitts, Atlanta, Ga.—The general incidence of entamebic infection is incompletely reported throughout all Southern states. As to the incidence of the infection in my own state (Georgia), the Secretary of the State Board of Health tells me that only 52 cases have been reported to the Board so far this year, and not all of these were confirmed by laboratory diagnosis. The State Board Laboratory has not found more than five or six positive specimens in a year, but they have reason to suspect a much greater incidence. In one of the towns where a positive stool was found the patient reported there were many cases with identical symptoms.

I should like to call attention to mixed infections of bacillary and amebic types. Amebic carriers who develop bacillary dysentery have intestinal parasites resident in the gut, and they are much more liable to develop dysenteric infection of the acute form.

In the treatment of entamebic infection it is necessary to correct any pre-existing anomalies in the gastro-intestinal tract, such as achylia gastrica, mucous colitis, atonic states, chronic constipation and intestinal stasis. The chronic infected colons of long standing have a colonic wall of low resistance which is easily liable to infection.

It is interesting to note a report of ten cases by Haughwout and Lantin in which benzol-benzoate was used in connection with the routine treatment with excellent results. With benzol-benzoate alone in one case the symptoms disappeared and also the cysts from the stools.

I do not agree with the essayist in regard to the use of emetin, but I concur with him as regards the use of powdered ipecac. I used emetin hypodermically and have given ipecac in dram

doses through the duodenal tube. In the long-standing cases I have had best results with the duodenal tube, using powdered ipecac.

Dr. W. E. Deeks, New York, N. Y.—I have had a rather extensive experience with the treatment of amebic dysentery, or a better term would be amebic colitis.

When I first went to Panama in 1906 I saw many severe cases of amebic dysentery, and the mortality was high. A large number of them were fulminating cases; others were admitted in a moribund condition, or secondary infections or perforations had already taken place. At that time ipecac was in general use and emetin was unknown. Irrigations of all kinds, including nitrate of silver, quinin, potassium permanganate, etc., were being tried, but no results were obtained. We did appendicostomies and colostomies and irrigated the colon, with only partially successful results. The treatment by bismuth subnitrate was then begun and we obtained surprisingly brilliant results.

The treatment consists in giving a preliminary dose of castor oil. The patient is limited to liquid diet, preferably milk, for the first few days. Bismuth subnitrate is then administered in teaspoonful doses, equaling 180 to 200 grains, every three or four hours in severe cases. It should always be administered in a tumbler of water, or, better, aerated water. Otherwise it may form a paste and not be effective. When the stools become firm, which is usually in a very few days, depending upon the severity of the case, the bismuth is administered only three times daily, and the amount of food is gradually increased. Usually at the end of two or three weeks the patient will be allowed an ordinary diet. Opium in any form is contraindicated, except possibly as a preliminary dose, when tenesmus is present. This can be readily relieved by a few normal saline irrigations.

In the fulminating types we give emetin, usually beginning with ½ grain the first day to see how it acts. The next day we give two doses and the following day three or four doses. The complete treatment with emetin should not exceed nine grains, or very alarming symptoms may be caused. As a rule three weeks completes the cure, and it is rarely followed by a relapse or liver abscess.

In the last five years in our hospitals we have treated over a thousand cases, and the mortality has been 3.3 per cent. When we consider that we receive patients in all degrees of serious conditions I believe there is no treatment known that will give equally satisfactory results with a minimum of discomfort.

Dr. John M. Bell, St. Joseph, Mo.—I want to relate briefly a case that came under my observation some years ago in which a pyorrhea was characterized by frequent stools and a flood of amebae. This case bothered me very much until I took scrapings from the teeth and found I was dealing with amebic pyorrhea. When you see a great many cases you should make a microscopic examination in order to differentiate between amebic pyorrhea and the Ameba histolytica.

Dr. A. L. Levin, New Orleans, La.—I do not agree with the essayist in regard to the question of carriers. He mentioned the fly as a most important factor in carrying the disease. Walker and Sellards did extensive experimental work in the Philippines in reference to the class of cases under discussion and came to the conclusion that the carrier is the chief factor in the spread of amebic dysentery, especially if he handles fruits. If he is unhygienic in his habits he is a great menace to his community.

The essayist said that if cysts are still found in the stools we should repeat the treatment of emetin and ipecac. I do not agree with him. When cysts are found emetin and ipecac do not dislodge them. You have to treat these cysts just as you treat hookworm with thymol. They are not affected by emetin or ipecac, because they have a wall surrounding them, and you can give emetin, in the words of my former teacher, until Gabriel blows his horn for the final resurrection, and it will not move them.

Dr. Deeks mentioned valuable points which we should remember. Subnitrate of bismuth is a very valuable drug in chronic cases. I have seen a number of chronic cases where the treatment with emetin and ipecac has been carried on to extremes and they had been made worse than before treatment. These individuals do not respond to emetin and ipecac, because the organism has gotten accustomed to them. If you give subnitrate of bismuth in large doses as Dr. Deeks mentioned in some of the chronic cases, or start with small doses of emetin and small doses of ipecac, and in addition give two teaspoonful doses of bismuth, you will get excellent results. I have six successful cases to my credit extending over a period of two years, whereas with the former treatment there was a recurrence every two or three months. The use of emetin alone should be condemned. It does not cure ameba, but emetin alone in children is an excellent drug.

Dr. Elliott C. Prentiss, El Paso, Tex.—Formerly this disease was called dysentery. We know that a great many cases are not dysentery at all and a great many of them have no diarrhea. Many of the cases I saw had a duration of from three to ten or even twenty years, had long since passed the diarrheal stage and were very much constipated. The x-ray showed a scarred colon, so that the only term you can apply to these cases is entamebic colitis. It is neither a dysentery nor a diarrhea.

Entamebic infection in western Texas, Arizona, New Mexico and in Mexico is common. You will remember El Paso is in the extreme western part of Texas and in a region which is very arid. We have a rainfall of nine inches a year. The air is very dry, especially around Yuma, where there are very few clouds. The sunlight is almost continuous and very bright. I have found out there that the virulence of the organism is very much less than it is in the tropics. The mortality is low and we rarely see a fatal case. Liver abscess is extremely rare. In some parts of the tropics liver abscess occurs in from 10 to 25 per cent of all cases. I do not believe liver abscess occurs in El Paso and in the arid southwest in more than 1 per cent of the cases. I very seldom see it, and believe that surgeons seldom see it. Whether the

reduced virulence of the organism be due to altitude or dry air or sunlight, I do not know.

My worst cases were those of infection by the Entameba histolytica. Of course we can all readily identify them, and I saw some cases there in which the Entameba nana was the only parasite found. These cases were nearly always milder and the ulceration was not so bad. These cases responded to treatment much more rapidly than did those in which the Entameba histolytica was found.

Dr. C. M. Grigsby, Dallas, Tex.—I have been treating these cases of dysentery first with emetin, then with the duodenal tube, followed by the use of subnitrate of bismuth in large doses. This treatment has given me splendid results.

Dr. C. A. Ray, Charleston, W. Va.—I am a living example of amebic dysentery treated by subnitrate of bismuth. Twenty-five years ago I had an attack of amebic dysentery which ran a course of two months. I lost 65 pounds in weight. Under the direction of Dr. Thayer, of Johns Hopkins, I took 100 grains of subnitrate of bismuth four times a day for two months, and you now see the result. Since that time I have had occasion to treat a number of cases of amebic dysentery. Subnitrate of bismuth in large doses has always given prompt and satisfactory results.

Dr. C. C. Bass, New Orleans, La.—I can testify to the fact that Dr. Deeks was treating his cases of amebic dysentery in Panama with a great deal of enthusiasm and also with much success. I have always felt, however, that his success was not so great as he thought and perhaps that it was not always due to the bismuth as he thought. He prefers to call it the bismuth treatment, but my recollection is that emetin and ipecac were also used in many of the cases.

I should like to call attention to the fact that amebiasis is a simple infection produced by a parasite whose host is necessarily man. It is the principal parasite that causes amebic dysentery and a great many people who have amebae have no clinical symptoms whatever. Therefore, there is a certain amount of what we may call natural resistance to the parasite. The parasite and the man get along together pretty well in some instances, but in other instances the parasite causes so much damage as to produce symptoms. It is to be expected in such a mild parasitic disease that other remedies than specific remedies may be followed by improvement in a great many instances.

We have but one specific agent against ameba, and that is ipecac and its various alkaloids. It is the only specific we have for amebiasis just as quinin is the only specific we have against the malaria parasite. Although we have only one specific remedy for the ameba, it is barely possible that these non-specific agents, especially bismuth, may still be very important in clearing up symptoms of the disease.

As for curing the infection, I am doubtful as to whether many are curing the infection in so many of their cases. Relieving the clinical symptoms is one thing, and curing the infection is an entirely different thing, especially when dealing with a parasite which, in so many instances, produces few and slight symptoms. We are absolutely unable to determine at the present time whether a case is cured or not. I mean a cure of the infection and not a cure of symptoms. I see no way of determining that a given patient is not infected with amebae or that his infection has been cured. We may be unable to find parasites after one or several examinations following relief of clinical symptoms.

We have a very similar condition in malaria. We may be unable to find malaria parasites in an individual who has been relieved of the clinical symptoms, but this does not determine that the individual is not still infected. In fact, we know that many remain infected weeks or months after the clinical symptoms are relieved by treatment or otherwise. I doubt that we can determine any more certainly when amebic infection has been cured.

Dr. Kilpatrick (closing).—Regarding benzylbenzoate, I am sure Dr. Fitts gave no more credence to its value in these cases than I do; and am sure that a careful study of the stools of "carriers" and those suffering from chronic dysentery will demonstrate the weakness of emetin as a remedy except in very acute cases.

With reference to the remarks and large clinical experience of Dr. Deeks, which I greatly respect, I maintain that I cannot believe bismuth subnitrate a specific for amebic dysentery. I know that it has marked therapeutic value, though the mode of its action is not known. There have been only a few specifics discovered in the history of medicine. Ipecac is without doubt one of them.

I do not know exactly how the cysts act. I cite Dr. Simon as authority that where cysts are present the vegetative parasite is of necessity also present. Dr. Levin is right. The uncleanliness of the carrier is the chief source of the spread of this disease, but the fly must bear the brunt of suspicion.

Dr. Bass struck the keynote of this paper. I believe that 90 per cent of patients treated for amebic dysentery end up as carriers. The only way to prevent liver abscesses, which I predict will be numerous among ex-soldiers during the next decade, will be the free use of ipecac powder.

TROPICAL DISEASES AND PUBLIC HEALTH

CHILD WELFARE WORK, ORGANIZATION AND ACTIVITIES*

By F. J. Underwood, M. D.,
Director Bureau of Child Welfare, Mississippi State Board of Health,
Jackson, Miss.

Conceded Importance.—It will be conceded that the most important step in public health work in modern times is the conservation of the health of the child. To rear a young and virile race we must look well to the foundation, the health and physical welfare of the child.

Congress and our state legislatures and members of county supervisors, courts and the public should understand that the individual body in health is the first line of attack against disease. The main objective in all public health work is the child. He has been neglected heretofore in public health activities, but we shall no longer permit this neglect. We must seize the golden opportunity of developing our health programs in a way that will make strong the line of defense against disease during childhood and adolescence. No longer shall we permit parents to feel that the sooner the child has all of the acute infectious diseases, commonly known as "diseases of childhood," the better, for so long as they do we cannot expect the best results from our efforts to raise the child health standards. We cannot emphasize the dangers of measles, scarlet fever, whooping cough, malnutrition and lack of oral hygiene too much. There are those who may seem extremely enthusiastic or "cranks" on the subject of oral hygiene. Those in the field making oral examinations of school children doubtless would say, "Bring on your cranks and may their tribe increase!"

Draft Data.—The appalling findings of the draft boards were a terrible indictment of the country for our neglect of the children. Had preventive and corrective work been done in childhood, thousands upon thousands of the physically unfit might have served their country in time of war and taken their rightful place in time of peace.

Economic Importance.—Child welfare is community welfare, for whatever is done for the well-being of children benefits the community as a whole. On these selfish grounds, at least, it is reasonable to expect a community to safeguard and to promote the interest of its boys and girls.

This country has been singularly unmindful of the children. The ordinary family, single-handed, cannot fully protect its children's health, nor fully assure their schooling, control their work, provide for their recreation, nor, if they are in any way defective, supply the special training or other assistance necessary.

"Child welfare work depends, for its realization, upon community action. The community and not the individual parent is now primarily responsible for the health, schooling, recreation, work, protection, care and training of children because it is more competent to control conditions and to supply the needs. This fact must be recognized and communities must be entrusted with powers and duties that will enable it to serve the people completely."

It is now known that tuberculosis and many other diseases which cost thousands of lives and millions of dollars in this country every year, are too often the sequelae of the so-called diseases of children.

"Children are helpless, and the highest privilege of the state is to see that they are properly cared for. They are at once our charges and our best friends. They look to their protectors, the men and women of the state, serenely confident that, no matter how dark the outlook and no matter how dreary the task, they will ever be moved by the same spirit that filled the soul of Sam Davis, of Tennessee, when he went to his death declaring: 'I would die a thousand times before I would betray a friend.'"

Child Health Heretofore Neglected.—Heretofore Mississippi and all other states have neglected their children.

With a small appropriation for public health work and with very few full-time health officers, it is no wonder that epidemics were frequent; that the death rates for such diseases as diphtheria,

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measles, whooping cough, typhoid fever and tuberculosis, while appreciably lowered in the past few years are yet high.

Hookworm disease of which children especially are the victims has been greatly reduced and the death rate for typhoid and malaria is rapidly decreasing. Until recently instruction in hygiene as given in the school, especially the rural schools, was primitive and ineffectual. Medical school inspection and school nursing service were provided for in but few places. Rural school sanitation was rudimentary, or wholly absent.

The state board of health appreciates the hearty cooperation of the state department of education in school work. The spirit of cooperation between these great state departments, without friction, is a matter of satisfaction and pride to all. Efficiency of health work will be more and more measured by attention to children.

The scheme of public education is coming to the point of full appreciation of prenatal work, care of the pre-school age child, and the inspection and medical examination of school children and correction of health defects. Any state in proposing a program of public health work must in self-defense incorporate a constructive program of child welfare work. There is no question about the fact that this is the most fundamental step in the prevention and control of contagious diseases among the rural population. Proper supervision of the health of school children will sound the death knell for many contagious diseases now prevalent.

A strong case supported by much unimpeachable testimony of neglect was presented to the Legislature of 1920 with the result that an appropriation of $40,000 was secured for the establishment of a Bureau of Child Welfare of the State Board of Health, $10,000 of this amount to be used for organizing and beginning the work during 1920, and $30,000 to be the budget for 1921.

Organization and Plan.—In order that a proper beginning might be made, it was deemed advisable to secure the services of an expert in child welfare work to assist in the organization of the Bureau, and with this in view, in August, 1920, upon request, the U. S. P. H. S. detailed a worker.

The plan was made at first for counties as follows:

A unit consisting of a physician, public health nurse and clerk-microscopist would be sent to a county which appropriated the sum of $1,000. This amount was to be used to pay the salary of the clerk- microscopist and overhead expenses of the unit. The state paid the salary of the physician and nurse, furnishing record blanks and physicians' equipment.

The work of a county child welfare unit consists of the following:

1. Weigh and measure all school children.
2. Physical examination of school children.
3. Follow-up work by public health nurse to obtain correction of defects.
4. Nutrition clinics.
5. Health center in each county with
   (a) Baby and pre-school clinic.
   (b) Prenatal clinic.
   (c) Classes for young mothers.
   (d) Clinics as needed locally.
6. County health organizations.
7. Prenatal letters.
8. Birth registration, baby book.
9. Newspaper service, educational.

After the examination of school children has been completed the public health nurse who has worked with the unit, and is therefore, familiar with the people and local conditions, is left in charge to do follow-up work, such as the permanent establishment of clinics, correction of defects and nutrition classes, gradually developing by educational means the need for a permanent health department in the county.

With the 1921 Budget it was found that five units could be sent into the field, and this was done. The first unit began work in Lowndes County, in December, 1920, and the other four followed rapidly in other counties. With these units it is planned to cover the state within three years with a nurse left in every county after the departure of the unit.

As the work of the units progressed, the need of a nutrition worker became more apparent; and a state worker was employed, in February, 1921.

The program for the State Supervisor of Nutrition Clinics is as follows:

1. Routine follow-up of findings of physical examination of school and preschool children by Bureau of Child Welfare physicians.

2. Follow-up of findings made by rural sanitation units or county health units.

3. Follow-up work upon request of any community or county as time from regular work will permit.

4. Routine follow-up work:

(a) Organization for nutrition clinics for underweight and undernourished children at which the mothers' presence is requested.

(b) Classes for young mothers in the proper care and feeding of children, with special reference to infants.

(c) Educational work regarding the school lunch, milk stations and the preparation of modified feeding for infants.

Another important step in child welfare work was taken in March, 1921. Statistics show the following:

Maternal deaths from puerperal septicemia for the year 1920 were 736.

Cases of ophthalmia neonatorum, 334.

Infant death rate, 83 per 1,000. There are approximately 1,700 registered physicians and between three and four thousand midwives. The majority of these midwives are illiterate negro women.

Realizing that the policy of ignoring these midwives helps no one but the undertaker it was considered expedient to begin this most important branch of work without further delay, and upon request a worker was detailed from the U. S. P. H. S. to take charge of the organization of this division of the Bureau of Child Welfare. The work was to cover:

1. Investigation of the midwives by counties.

2. Issuance of permits to those who come up to requirements.

3. Instructions to those to whom permits were issued.

4. Regulations and other necessary literature issued to midwives for their guidance.

What we hope to accomplish:

1. More complete birth registration.

2. Decrease in the number of infant deaths.

3. Decrease in the number of cases of ophthalmia neonatorum.

4. Decrease in the number of maternal deaths from complications incident to child birth, such as puerperal fever.

5. Decrease in the number of mothers with permanent impairment of health following child birth.

Silver nitrate solution in wax ampoules, two ampoules to the package, is furnished the midwife free by the State Board of Health, and any physician may have this upon request. The first supply is given the midwife at the time of registration, and subsequent supply is obtained by her from the county health officer or State Supervisor.

DISCUSSION

Dr. E. G. Williams, Richmond, Va.—When the State Board of Health was first organized I looked upon our work as preventive medicine, to be limited to the prevention of disease. We did not do any phase of work that did not have the direct purpose of preventing disease. But in 1914 we were asked by the Professor of Education of our University to find out the condition of the school children in one county. We inspected every school child in Orange County, Virginia. We were surprised to find the large number of children having physical defects. It was such a surprise to us that we thought perhaps the conditions in that county were unusual. In the following two years we examined the children in six other counties. The results were approximately the same.

These examinations were but a prophecy of what was shown a year and a half later in the draft. The draft was no surprise to us after inspection of the school children in these rural districts.

That opened to us a new field of work. The state should do something for these children with physical defects. The medical profession has the skill to cure these defects, which may handicap the children for life or at least make them more susceptible to more serious conditions. We started a Child Welfare Division and made the nurses' work subject to it. The following Legislature passed a law authorizing supervisors to require the physical inspection of school children and make appropriations therefor and have correctional work done. That was optional for the counties.

In 1920, the Legislature made the inspection of school children compulsory. The school children had to be inspected by the teachers. It is not a medical examination, but a physical inspection. We do not expect the teachers to make a thorough examination, but they can tell whether the children can read what is written on the blackboard. Any intelligent teacher can readily recognize whether the child is deaf and whether it has defective teeth. The teacher can weigh and measure the child and compare with the standard measurement scale. All we ask the teachers to do is to see if there is any serious defect and send notice to the parents.

The law also requires that teachers, in order to teach, by 1925 everywhere must have success-

fully stood an examination on physical inspection and physical education. That makes 12,000 school teachers in our State, every one of them, health workers. That, I think, is a tremendous advantage. The nurses only help in more serious work. The duty of the nurse is to follow up cases in the homes and have correctional work done.

The problem is how to get all these physical defects corrected. The way we have done it in dental work is, we have asked the State Dental Society what to do in these conditions. They, through their committee, have cooperated and we have a dentist attached to our staff. He gets other dentists to run clinics. We have adenoid clinics in the same way. Thus we expect to avoid the opposition of the dentists and the opposition of the doctors. Primarily the question is to put up to them that this work has to be done by some one.

A few other states have the compulsory physical education law for teachers. It is a great advantage.

Dr. Harris, Little Rock, Ark.—What are the standard qualifications for a midwife? Approximately what number of these four thousand midwives can meet any reasonable qualifications? I should like to have some idea as to the distribution of the seventeen hundred doctors as to accessibility or availability to the rural districts, and if these midwives are unable to measure up to the qualifications and hence are prohibited from practicing, what effect would that have upon the motherhood of the state?

Dr. B. L. Wyman, Birmingham, Ala.—In reference to the physical examination of children when they enter school, is any effort made by school inspectors to eliminate the mentally defective child? I have found since the World War in connection with neuro-psychiatric examinations of ex-service men that many of them who were inducted into the service were extremely illiterate and mentally defective. They entered school at the usual school age, attended several years, and making no progress in their studies, dropped out. I think it is highly important in school inspection work to eliminate from our public schools the mentally unfit. For this important work a trained psychiatrist is needed. The mentally defective child in the school as a rule makes no progress and demoralizes the other pupils. The group of low-grade defectives accomplishes nothing in the school and it is an absolute waste of time to endeavor to teach them elementary education.

It is very important in making physical examinations of school children to include the intelligence tests in order to ascertain the intellectual level of the child. In many of the states in the South there are no institutions for the feebleminded. This class needs separate schools adapted to its needs with trained teachers. In all institutions for the care of mentally defectives, schools for training along educational lines, as well as vocational training, are provided.

In Alabama, we are just now building an institution for the feeble-minded and hope to be able to care for a large number of children who need care and training. We have in my State school inspection in many of our counties and in all where a health unit has been established. These inspections include the recognition of mental defects as well as the physically subnormal.

Dr. L. B. McBrayer, Sanatorium, N. C.—I am quite sure I misunderstood Dr. Underwood's statement in regard to the number of deaths from septicemia. It was something over seven hundred as I heard it. It seems to me that it is an appalling statement, that it is a disgrace to the State Board of Health, and is a disgrace to the medical profession, and it is a disgrace to the people. I hope that I misunderstood it. I am quite sure if I did not that he has gone about correcting the matter in an intelligent way, but I should like to know if he has these statistics divided so that he can tell just how many of these deaths from septicemia occurred among the practicing midwives and how many among the physicians of the State. Of course, the midwives we have always with us, and as we are doing in our State, the problem is to make them learn a few things, such as the use of nitrate of silver and how not to meddle with the labor.

Dr. P. E. Blackerby, Louisville, Ky.—What relation exists between the child health unit and existing health department in the county? Do they take over the work of the health department or continue to cooperate, and is the purpose of these child health units to continue demonstration until an all-time health department is obtained? In the brief time that you have been working, have you been able to get a tabulation of the correction of defects among the school children?

Dr. J. P. Bowdoin, Adairsville, Ga.—One of the biggest problems in the South is this of the midwife. I should like to ask the Doctor how far he goes in the midwife's certificate, how he gets his information, what instruction is given to her and what the result has been. I should also like to know just what the venereal infection has been. In our State we have had two schools that had considerable venereal infection. Their suspension was considered, but the cases were handled satisfactorily without this.

Dr. James A. Hayne, Columbia, S. C.—The paper expressed a well-thought-out scheme of organization for a bureau of child welfare. We have in South Carolina such a bureau and it is functioning fairly well. We have almost the same activities that they have in Mississippi. We have met with some opposition, met with some difficulties in carrying out our plans. The question of the midwife is of paramount importance. We do not have 750 deaths from sepsis in South Carolina, although South Carolina and Mississippi are practically the same in population. But we have from 250 to 275, and that is about 50 per cent, or 100 per cent higher than the Northern states.

The question of midwifery and midwives is brought about by the congregation of the physicians in the city. For instance, in the City of Columbia we have ninety-three physicians. Columbia is a city of about thirty thousand people. Richmond County, in which Columbia is situated, has thirty thousand outside of the city. There are three doctors in the county and ninety-three in the city. Now, if it takes ninety-three doctors to take care of thirty thousand people in the city, it is obvious that three doctors cannot take care of thirty thousand in the county. It is probable that the country inhabitants have just as many children as city people, if not

more. So it is impossible for the doctors in the county to take care of a number of cases. Something must be done.

We have the midwife. It is a misnomer and should not be used by any intelligent physician in describing an ignorant, dirty, filthy race of people that take care of the mothers in their hour of extreme agony. It is an outrage to use the term midwife. The word "granny" is what we should use and every one knows that it is what we mean.

We have no trained midwives in the South. We have a school in Charleston, and I think it is possibly the only school outside of New York in the United States where midwives are trained, where they get medical education and are taught as midwives. There we are training a few midwives, not enough to take care of the population. We graduate this year about fifteen.

Midwives, of course, in European countries take the place largely of obstetricians in this country, and the foreigner who comes to this country expects to be waited upon by a midwife and not by a doctor, even in the more intelligent or well-to-do classes.

Every negress who becomes blind and decrepit and unable to do anything else takes up midwifery. We are trying at least to teach them what not to do. We have given up the idea of teaching what to do. We are preventing them from doing anything if we possibly can. That is as far as we go.

Dr. Underwood (closing).—During the year 1920, there were 393 deaths from the puerperal state reported to the State Board of Health, of which 127 were white and 266 were negroes. I do not know how many of these cases were handled by physicians and how many by midwives. We have been very inconsistent in Mississippi, in that midwives have been permitted to practice without any sort of instruction or supervision. The physician spends four years in medical college, and from one to two years in the hospital, and then he must secure a license or permit before he is permitted to practice his profession. In other words, he cannot attend an obstetrical case no matter how many diplomas he may possess, or how much hospital training he may have had. Yet the midwife, who for the most part is ignorant, filthy and superstitious, has been permitted to attend confinement cases, make vaginal examinations, give douches, fail to put drops in the eyes and leave in her wake an army of women broken in health, ready for the operating table, if not dead.

In our State we have an Embalming Board whose duty it is to examine and license undertakers, and no undertaker is permitted to embalm a body unless he has first obtained a license. We are very particular in Mississippi as to who handles the woman's body after death, but until the past year just anybody was good enough to handle her in life when she was most susceptible to infection. We do not permit waiters with syphilis or tuberculosis to work in restaurants or hotels, yet many a midwife with these diseases has practiced her profession.

Several months ago, when our efficient Supervisor of Midwives was instructing a class of these women, one old midwife, almost blind, a well advanced case of syphilis, upon being asked if she put the drops in the eyes, replied, "Lawdy, no, Honey. I never does dat. I does lack de Lawd, I uses spittle in de eyes." When I visit our Blind Institute and see row upon row of bright youngsters who will never see the light of day, who have never seen their parents, brothers and sisters, denied the privilege of seeing Nature in the spring time, I think of those "saddest words of tongue or pen—it might have been."

There was some opposition when the State Board of Health very wisely decided to begin this work with the midwives. Many people said that we should do away with the midwife, but the midwife is a necessary evil. In these days doctors are scarce and are becoming scarcer, particularly in the remote rural districts. Many women would have no attention at all but for the midwife. Therefore, the humane, the Christian, the intelligent thing to do is to give them proper instruction and keep them under close supervision.

Some one asked as to the relation existing between the Bureau of Child Welfare and the county health department. We do not send child welfare units into counties having an all-time health department, for the very good reason that the county health department is able to do the child welfare work and gives child welfare work a prominent place on the county program.

Our child welfare unit consists of a woman physician, public health nurse and clerk microscopist. Each county in which we put on our program is required to appropriate $1,500. The State pays the salary of the physician and furnishes physician's equipment and the county pays the salary of the nurse and microscopist. The unit remains in the county until every school child is given a physical examination. In the average county this will take about three to four months. On Saturdays, nutrition clinics and classes for young mothers are held, monthly pre-natal letters are mailed to each prospective mother in the county whose names and addresses have been secured. At the request of the county health officer, Schick testing is done, and toxin-antitoxin, typhoid and small-pox vaccine are administered. Upon the departure of the unit, the unit nurse is left for six to twelve months to do follow-up work and a new nurse joins the unit in the next county.

We have been very successful in establishing clinics. In these clinics tonsil, adenoid, eye and dental work is done at half price. Whenever possible the local physician and dentist do this work. Occasionally it is necessary to import a specialist, but the local physicians agree on this man and also agree upon the price charged. In the clinic the family physician decides whether a case is worthy of charity or not.

In our Walthall County Clinic, at Tylertown, Miss., only six families of the first 110 who had tonsil and adenoid operations asked for gratuitous service. These low prices are made as a special inducement to the parents to have their children treated.

The club women and the parent-teachers' association usually furnish the cots, bedding, linen, etc. Most hearty cooperation has been given in all the counties where the units have been operating. It is the plan of the State Board of Health to give each school child, white or black, a health examination once every three years, with close follow-up work to obtain correction of defects.

SURGERY

RAILWAY, INDUSTRIAL, GYNECOLOGICAL, OBSTETRICAL AND UROLOGICAL

THE POST-MATURE CHILD*

By Charles B. Reed, M.D.,
Chicago, Ill.

"There is no such thing as a post-mature child." We have all heard this declaration and many of us have received it as a portion of the true faith. But with experience comes doubt and investigation. How is it that the period of gestation is so often prolonged? You have miscounted, is the obvious reply. But why then is the child so large? Why does it look so old? Is the uterus an organ of rigorous and peremptory function like the heart, or is it subject like the intestine to many anomalous interferences which retard or accelerate its activities? What is maturity, and what is post-maturity? These questions press for solution.

Maturity may be defined provisionally as that state or degree of development which enables the fetus to surmount easily the perils and aggressions of extra-uterine life. We may add also that a mature fetus must show the evidence of a a certain physical endowment as revealed by the length and size of the body as well as the head diameters. Without dwelling tediously upon the authorities which are accessible to you all we may set forth the almost unanimous opinion that mature babes must measure from 48 to 53 cm. in length, weigh from 5 to 9 pounds, and measure from 8.5 to 10 cm. in the bi-parietal and from 10 to 12 cm. in the occipitofrontal diameters of the head.

The term "post-mature" is not common in our literature and yet it is reasonable to assume that any babe which exceeds the maximum limits just given should be called post-mature just as one which did not reach the lower boundary should be called premature.

The post-mature child therefore is a large child but it is a child which has attained its overgrowth through detention in the uterus after it has become mature. If we admit these definitions we must also accept the principle that a post-mature child is abnormal and, therefore, a proper subject for obstetrical study and possible regulation.

May we now go a step further and assert that a large child, a child over nine pounds, a post-mature child if you please, although a source of pride to the parents should by that same token be a reproach to the obstetrician.

It is a source of pride to the parents partly through tradition and partly through the comfortable but, as we believe, the erroneous opinion that such a child has a better start in life. The obstetrician also is gratified since in his heart he realizes that he has gambled for a great prize and the cards were favorable to him. He knows only too well the dangers to which both the mother and child have been exposed and justly he congratulates himself upon their escape.

He is familiar with the prolongation of labor which these large babies exact and the consequent strain on the fortitude and physical endurance of the mother. He recalls cases also in which the uterus is overdistended, the pains weak and shallow or, if strong, where the membranes rupture prematurely and a dry birth succeeds. He may remember cases where the large, firm head did not easily mould or engage and when finally forced through the brim the soft parts were overwhelmed and the ultimate delivery whether spontaneous, or more commonly instrumental, was accompanied by extensive trauma and lacerations. Fistulae from the pressure of the large slow moving head are not unusual and maternal fatalities must be expected to develop out of the long labor either from infection, hemorrhage or the extensive and violent instrumentation.

The child also is endangered by the relative shrinkage in the blood supply, by strangulation at the vulva or by the prolonged cerebral compression. Asphyxia, intra-cranial hemorrhages, skull fractures and paralyses are always near, while

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craniotomy and evisceration are not far removed.

These catastrophies do not depend so much upon the mere weight of the child as upon that inordinate volume in which the parents take pride. It is this bulk which retards progress. It is the firmness of the post-mature head which prevents moulding and delays engagement. It is the greatness of the mass which overdistends the parturient passage and compels the maternal morbidity or the fetal fatality.

The Perrett measurement of antero-post-diameters of the head. The poles of the head are found by the fingers and the assistant applies the pelvimeter.

And to what purpose. Does the unusual size of the child betoken a better inheritance or a more favorable entry upon life? It does not seem so, for the extra weight is rapidly lost. A babe of nine or more pounds will lose from one to three of those pounds in the first three days post partum, while a seven and a half pound babe will lose regularly about nine ounces and rarely more than fourteen in the same length of time. This means that the overgrown child at the first opportunity simply squeezes out the fluid and fat cells which have been stored up. Maturity comes to the child *in utero* just as it comes to the adult and during a protracted uterine life the nutritional impulse exceeds the expenditure and in consequence the tissues are distended with fat and fluid which serve only to clog the organs, impede the vital functions and jeopardize the delivery. As soon however as the child is born the conditions of post-maturity no longer fetter the physiology. The tissues relieve themselves of their unnatural burden and return to normal. The

The McDonald measurement. From upper border of symphysis to highest point of fundus. Note method of holding upper end of tape. It does not follow down into the depression above fundus.

child "cures" itself of its excessive obesity and a typical healthy existence begins.

Now note, please, that we do not claim that all babes of nine pounds or more are post-mature. By no means. But it will be well to recall that according to v. Winckel, three quarters (74.8%) of these heavy babes have passed the estimated dates of their individual maturity. Such date of course may not coincide with the date estimated for their confinement for some babes mature early and others late. The factors of fetal nutrition are extremely important in this connection as well as

the potentials of heredity and in many cases the unexplainable prolongation of pregnancy. Whatever the cause, the man who regularly measures his babies will often find one which is more mature at the eighth month than another at the ninth or tenth.

With all the time, energy and talent which has been devoted to the problem we do not yet know the exact duration of human gestation. Nor are we likely to answer this question until we can deter-

The Ahlfeld measurement. One tip of pelvimeter on upper pole of the child. The other inside the labia majora above the chitoris is pushed up until it impinges on upper border of symphysis.

mine the moment when fertilization of the ovule occurs or the division of the nucleus begins.

We have learned that spermatoza may remain active and potent in the congenial environment of the female mucosa for so long as three weeks and we know that conception may occur as well before the first period missed as after the last one present. The whole of our knowledge however comes finally to this, that the human female requires about 275 days for gestation with an upper and lower limit of 321 and 268 days respectively. This irregularity doubtless provides an ample latitude for the acquisition of maturity in a majority of the babes but it also produces a definite percentage which go over time. Parvin thinks this number will reach 6 or 8%. That is to say, the pregnancy is prolonged and the fetus becomes post-mature once in approximately fourteen cases. Whether the onset of labor be determined by accident, or through the influence of a placental principle, or in consequence of impulses from the endocrine glands, we do not know. We do know that the event, when left to nature, is a matter of extreme uncertainty. The long retention of a lithopedion in some instances, the more frequent imprisonment of the living fetus beyond the average term as well as the occasional occurrence of premature labor all indicate that muscular irritability is a factor but also that the uterus has a tendency to functionate just as readily by caprice as by card.

If we admit, however, the existence of post-maturity and the possible perils, what are we to do about it? Can we determine the presence of maturity or post-maturity and should our inference, if indicated, be prophylactic or decisive, expectant or resolute?

To be sure, the boundary which we have set between what is generally accepted as normal and what we have assumed to be pathological is purely arbitrary, but possibly if we clash together a few of our reasons we may be able to establish a plausible proposition.

In the agricultural districts where the writer was reared it was customary to estimate the degree of ripeness of the fruit by its size and condition rather than by the time it had hung upon the parent stem. Does it seem irrational to determine the maturity of the human fruit by the same unequivocal test? But can we do this? Have we any reliable methods of measurement and definite standards of comparison?

According to our definition the maturity of the fetus is represented by certain physical conditions which, when present indicate that the purpose of gestation has been fulfilled. These beacons, as we have

stated, are the length, the weight and the fetal head diameters.

When we took our academic work we were shown in a more or less perfunctory way how to take the measurements of the pelvis but we were not taught to measure the babe and in fact were assured that this feat was impossible. In other words, we were sent to the firing line with a rifle whose calibre was approximately known and with it a heterogeneous assortment of cartridges of no certain or even ascertainable dimensions. They might fit or they might not. If they did, the problem was solved to the gratification of the parents but if they did not fit the resulting disaster was accepted as the act of God.

It is now possible to determine with extraordinary accuracy the size of the projectile which is to pass a human canal of any appreciable size. In fact, we can measure the length and the size of the child and the diameters of the head with more certainty than we can measure the pelvis. It follows that a diagnosis of fetal maturity can be definitely assured and this knowledge can be used under all circumstances as a safer and more reliable basis for the estimation of the proper date of confinement than the irresponsible menstrual history or a carefully observed date of quickening. The diagnosis will rest upon measurements made by the McDonald, the Perret and the Ahlfeld methods, all of which are easily learned, readily practiced and highly dependable. Furthermore these procedures are a delightful adjunct to our art, for when the final measurements are made and recorded on the day of confinement we have only to await the termination of the case to verify the correctness of our technic.

Some of the charts which were made by our internes at Wesley Memorial Hospital after two weeks of experience will give you an idea of their value and accuracy. While these are circulating we shall take the time to review for you the technic of these maneuvers and our experience with them.

The length of the babe is obtained by Ahlfeld's procedure which has long been known but rarely practiced as a routine and seldom taught. One tip of the pelvimeter is placed upon the upper pole of the child and the other upon the upper border of the symphysis, inside the genital crease which is uplifted to the height of the border sought. From the reading thus obtained we deduct 2 cm. to allow for the thickness of the abdominal wall and multiply the result by 2. This is the length of the child.

In our experience the post partum figures tallied exactly with the ante partum estimate in 37 %. The variation was 0.5 cm. in 24% and less than 1.5 cm. in 29%. Thus in 90 % of our cases the error was inconsiderable.

The size of the uterus in reality designates and sets forth the size of the child. By Spiegelburg's figures the fundus must extend 34.5 cm. above the symphysis when the babe is mature. McDonald found that a mature fetus required a uterus whose fundus would extend 35 cm. above the upper border of the symphysis. McDonald's measurement is made with a tape from the upper border of the symphysis along the convexity of the abdomen to a point even with but not extending down into the depression above the fundus.

The child grows at the rate of 0.75 cm. in length and ¾ lb. in weight per week as an average, so it is easy to figure by this method not only the maturity of the child but the proper date of confinement. We found this procedure to be extremely reliable. McDonald also uses this means to determine the month of the pregnancy. He divides the height of the fundus obtained as above in centimeters by 3.5 and the result is the month and its fraction of the gestation.

The problem of the fetal head diameters is one of absorbing interest. Only two, of course, as possible, the occipitofrontal and the biparietal, but fortunately these are the ones most needed. They are obtained by Perret's maneuver. Thus the occipitofrontal is measured as it lies more or less transversely across the inlet without making any allowance for the thickness of the abdominal walls. From this result the biparietal is estimated by a system of deductions according to a scale suggested by Perret and elaborated by McDonald. If the occipitofrontal measures 12 cm., for instance, 2.5 cm. is de-

ducted to get the biparietal. From 11.5 cm. occipitofrontal we take 2.25 cm., from 11.25 we take 2 cm. and from 10.0 to 11.0 cm. we take 1.5 cm. to get the biparietal.

In our series the post partum measurement of the occipitofrontal tallied exactly with the ante partum estimate in 40 per cent. The variation was 0.25 cm. or less, in 34 per cent, and within 0.5 cm. in 24 per cent and erred by 1 cm. in but 4 per cent of the cases.

The biparietals obtained from the above occipitofrontals were found post partum to be exact in 36 per cent, within 0.25 cm. in 31.7 per cent within 0.5 cm. in 24 per cent, and to vary by 1 cm. in but 6.5 per cent of the cases.

It is obvious that these differences are too slight to affect the diagnosis to a detrimental degree. The tests are fallacious and unsatisfactory in cases of hydramnion and extreme obesity but on the other hand twins and lightening can often be recognized when the tape is regularly employed.

We have at our command, then, the means of measuring both the size of the pelvis and of the body which is to pass through it. Experience has shown that the delivery of an oversized babe is associated with peculiar dangers to the mother and child which we believe should be and can be avoided. We are convinced that the added weight of the child is in no way an advantage but frequently a detriment to the babe. Our knowledge at present sustains the belief that the onset of labor is wholly accidental and while it may occur two weeks ahead of the estimated date without unusual danger to the mother or child yet postponement of delivery un' two weeks after the maturity of the child may be the cause of serious complications.

The logic of our position demands that the pregnancy be watched carefully and the fetus measured at frequent intervals during the last weeks. If the maturity of the child is beyond question the pregnancy should not be allowed to continue indefinitely. The purpose of gestation is the production of a mature child and when this is accomplished the normal end of pregnancy is attained. The further retention of the fetus is no longer profitable and rarely permissible.

Termination of the pregnancy can be easily and safely brought about whenever the fetal maturity is assured. It is true that the interruption of the pregnancy, even at term, is a violation of our cherished traditions but admitting its sacriligious aspect we nevertheless maintain its legitimacy. We merely propose a new indication for the induction of labor, an indication based on painstaking observation and a high consideration for the welfare of the mother and child.

To those who are accustomed to stimulate a sluggish bowel it will not seem unreasonable to inaugurate the contractions in a dilatory uterus and those who recognize the desirability of opening appendiceal abscesses are already convinced that it is safer to guide and control the phenomena of the body than to await the haphazard and often misdirected operations of nature.

Such a management of a case requires more skill, more care and a higher responsibility. But no man who realizes the gravity of the problem can be content to allow his reason to be thwarted and his patients endangered through the whims and caprices of an unintelligent hollow viscus.

31 N. State St.

Discussion follows paper of Dr. Vogt, page 295.

THE INTERRUPTION OF PREGNANCY AT TERM WITH A CONSIDERATION OF THE METHODS OF ESTIMATING THE MATURITY OF THE FETUS IN UTERO*

By W. H. Vogt, M.D.,
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Much has been recently said against the various practices now being carried out in obstetrics, and it seems to me that the time is ripe for something to be said in defense of one of the methods which, among others, has recently come in for considerable criticism. I refer to the induction of labor at term and the practice of attempting to estimate the maturity

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and with this, the size of the fetus and the fetal skull before birth. The value of these methods is much debated, but seemingly only by those who do not practice them, while those who are familiar with the subject are enthusiastic.

I think that obstetricians as a class are ultra-conservative and look upon advanced ideas as meddlesome midwifery. One author recently showed by statistics that the mortality in Newark was smaller in cases attended by the midwife than those cared for by the physician, and he implies that this is due to the fact that the obstetrician today is too meddlesome. In the same article this author shows that the maternal death rate in hospitals is as great today as it was one hundred years ago, and that the fetal death rate is essentially the same as in the century past.

In answer to the first statement I have only to say that so far as I know the midwife has no mortality whatever. The reason is plain. When in trouble she sends for the doctor and he signs the death certificate. The death is charged against his methods of treatment. So far as the mortality figures for the past century for both mother and child are concerned, it seems to me that that is just an added reason for every one to make an effort to reduce this mortality by adopting some of the newer methods instead of the conservative watchful waiting plan.

As a teacher of obstetrics I can see the dangers of teaching modes of treatment that are not universally accepted, but at the same time I can see no harm in instructing students and practitioners in methods of treatment in which one has confidence and which bring results.

For a long time we have attempted to make labor easier for the mother by the use of anesthetics: first chloroform, then ether, then nitrous oxid and finally morphin-scopolamin analgesia was made use of. All of these methods have their value. The functions of the mother's organs have been carefully watched throughout pregnancy, in order to prevent any ill results to her in the end, but in the careful observation of the mother we have only too often overlooked the fetus, and as a result have been facing a great number of fetal deaths. Perhaps not an increasing number of fetal deaths but the fetal mortality has certainly not been reduced as I believe it could be if proper methods were adopted.

The efforts that are being made to save the mother or to bring about a state of health in the mother after confinement as nearly normal as possible is a factor for which we should continue to strive, and I do not wish to belittle these efforts, for after all the mother is and should be the chief consideration. Yet we can and should lower the large fetal mortality. Statistics show that out of one hundred babies born, from four to six die during labor or a short time after in consequence of the event. Reed, in one of his articles has shown that there are a number of factors which contribute to this result. Some die from maternal and some from fetal diseases, as syphilis or hemophilia, cerebral injury, or pneumonia, but excluding these, we may safely say that asphyxia is the form of death that obtains in most cases. Why this large number of asphyxias? The above mentioned author has also shown that as soon as the membranes rupture the uterus diminishes in size, the contractions of the uterus become harder and more frequent while the gas exchange between mother and fetus becomes greatly restricted, and as the pains become more frequent the intervals between pain become shorter and the danger for the child increases. Reed quotes Schultze who claims that the intra-uterine pressure increases after the rupture of the membranes, and following this a change of blood results and oxygen starvation begins in the fetal blood, while retention of carbon dioxid increases. Compression of the cord or of the placenta or its soft site may take place and result fatally for the fetus.

We know that long labor can be expected in even moderately contracted pelves or in old primiparae, where not only the condition of the pelvis, but that of the soft parts as well may contribute greatly to the prolongation of labor. We overestimate the danger to the mother and minimize the danger to the fetus.

The danger in these cases is due to the prolonged second stage and the fetal mortality has been shown to be quite high in

such cases. There are three times as many still births occurring in primiparae as in multiparae. It is interesting to note the experience of Veit, who, in a series of 2550 cases of head presentations, found that in labors which lasted two hours the percentage of asphyxia was 18.35 per cent, while 1.7 per cent were stillborn and 5.5 per cent died later. In the cases lasting four hours the percentage of asphyxia suddenly went to 49.65, there were 5.59 per cent stillborn and 6.22 per cent died during the next few days. This shows that prolongation of labor with its accompanying pressure on the fetal skull, often producing paralysis of the respiratory centers, is responsible for a large number of cases of asphyxia and death of the fetus. Prolonged labor usually means difficult labor, and difficult labor often ends with difficult instrumental delivery accompanied by a longer or shorter period of anesthesia.

It is needless to call your attention to the damage done by instruments in many cases and to the danger of prolonged anesthesia. Any anesthetic, whether it be chloroform, ether, gas or morphin-scopolamin narcosis, can be given safely for a short period of time, and particularly when given only during the time of actual pain, but when such narcosis is given over a long period of time it adds greatly to the dangers of asphyxia and death of the fetus. This, then, leads us to the question of not only making labor easier for the mother, but likewise easier for the unborn fetus by shortening the duration of labor and attempting to prevent difficult instrumental delivery with all its associated dangers and prolonged anesthesias. How can this be done?

I am sure that every well informed practitioner makes use of the pelvimeter and informs himself of the pelvic measurements in a given case. On the other hand, an attempt to estimate the size of the child *in utero* has not been practiced carefully until recently, although we have had at least one very satisfactory method of doing this for some time. Those of us who are doing obstetrics have realized that it is of little value to know that the pelvis of a woman is normal in all of its measurements if we have no knowledge of the size of the child.

We must know whether a disproportion exists between the size of the child and that of the pelvis, or all pelvic measurements will be of no value. We know that human gestation may vary from 240 to 336 days, yet the child may be fully matured at 275 days, and it is, therefore, essential to know when labor in a given case should occur. We assume that a matured child is 50 cm. long and weighs from five to eight pounds, and if we believe the statement of von Winckel, the child of over eight pounds is overmatured in over 70 per cent of such cases. Engelbach states that large babies should be suspected of suffering from prenatal thyroid insufficiency. He has had occasion to see quite a number of hypo-thyroid children who had a history of being very large at birth.

Von Winckel also shows that the continued growth of the fetus in the mother progresses very rapidly and increases the danger to both mother and child by increasing the operative complications and the prolongation of labor. Why the forces of labor begin at a certain time in one case and not until a much later period in another is still an unsolved question. Whether this is due to some change in the endocrine system has not been definitely settled, but when we consider the previous statements regarding the progressive increased size of the child it certainly is not a matter of indifference when labor should start. By the simple methods that some obstetricians have adopted the maturity of the child can be fairly accurately determined, and if so determined, the course of pregnancy and labor be regulated.

The early termination of pregnancy for serious diseases of the mother, for early toxemias and pernicious vomiting of pregnancy is of great value. These conditions indicate early interruption because of their seriousness to the mother, and because we do not wish to deny the woman the relief which would probably not be effected if we procrastinated. In those cases of pelvic contraction where there is a disproportion between the size of the pelvis and the fetal skull, the question of

interruption of pregnancy frequently arises. I am not in favor of this procedure in every pelvic contraction of moderate or severe degree, for in those cases of severe degree Cæsarean section offers a better chance to both mother and child, but in those cases of moderate degree we must use great judgment. The size and the shape of the pelvis must be accurately determined and the size and the degree of compressibility of the fetal head in relation to the pelvis must be accurately ascertained; this, if necessary, under general anesthesia. Likewise must the time of pregnancy be determined at which labor should be started. The interruption of pregnancy for pelvic contraction should never be done earlier than the thirty-seventh week of fetal gestation, and later if possible, but never when a pelvis measures less than 8.5 cm. Even with this minimum pelvic diameter the head of the fetus must be small. Pelvic contraction is a relative term. A pelvis is judged to be large or small when it will or will not admit the passage of the head, and any means by which we can determine the size of the head before birth will certainly be of inestimable value.

For those cases, however, where there is perhaps only a slight pelvic contraction or none at all, and where pregnancy has been prolonged, we have a most valuable aid in the induction of labor when the fetal head is found floating above the pelvic inlet in a primiparous woman at or near the end of pregnancy, for here we can be fairly certain that the head is too large for the given pelvis. Why, then, allow our cases to reach this stage if we are in a position to observe them carefully and regularly? To deviate from the usual methods of waiting patiently until labor sets in of its own accord and interrupt pregnancy when we feel that the uterus has reached its full growth is, in my opinion, not meddlesome midwifery, but scientific obstetrics. It is necessary that we get away from the old-time methods of waiting until Nature starts labor, perhaps after the baby is matured, but much too large to pass the pelvic canal without difficulty and without operative trauma. By interrupting at term the patient and physician both know when labor is going to begin and the former is spared many hours of suffering, her physical condition is left unharmed and the chances of her baby's living are greatly enhanced. There is, on the other hand, no great disadvantage to the child if labor should occur a few weeks before maturity, but there is an increasing danger to both mother and child when maturity has passed and when the child has greatly increased in weight. We know that the child develops at the rate of 1 cm. each week and proportionately in weight.

The bringing of a large heavy baby into the world should today no longer be a pride to the attending physician, for it has probably been done at the expense of the mother's health and subjected her to a long and tedious ordeal. The objections that have been raised to the interruption of pregnancy at term are: (1) the danger of infection; (2) the possibility of bringing a child into the world before it has a chance of surviving; (3) the methods employed do not always induce labor; and (4) they do not diminish the frequency of operative termination. The first objection can be avoided by proper technic. Any one who is able to do clean surgery is capable of carrying out this maneuver satisfactorily. When it comes to the question of maturity we have perhaps a few more difficulties to overcome, but these, too, I believe, with practice, can be eliminated. In answer to the third objection, some of the methods have failed me (castor oil, quinin and pituitrin), but the bag has never failed, though sometimes a second bag is required. But even an occasional failure should not condemn the practice, for is there anything in medicine that can always be depended upon to act under all circumstances? The methods must be made use of more generally than they are at present if we are to determine whether they diminish the operative termination of labor. The statistics of a few men working in this field cannot be considered decisive.

To depend upon the date of the last menstrual flow is unreliable and unscientific for the determination of the expected date of confinement. The estimation of the maturity of the fetus can be done

much more reliably and more scientifically by other methods. With these methods the woman and child are far safer than when left to the watchful waiting policy of years ago. With the methods at hand of calculating the time of maturity we can with a fair degree of accuracy arrive at conclusions that are seldom faulty. We must of course individualize and be as careful to avoid hasty actions as timid delays.

Let us make use of the Ahlfeld, the McDonald and the Perret methods to determine the size of the infant *in utero*, always of course bearing in mind that they are all fraught with a certain degree of error, but are sufficiently correct to be of practical value. An extremely large Ahlfeld or McDonald measurement usually indicates a large child, while a sudden diminution in either of these measurements show that the head has entered the pelvis. The Ahlfeld method, which is perhaps the most reliable, is based upon the fact that the fetus at full term measures 50 cm. in length and the length of t fetus is the most reliable criterion of its maturity. Naturally the Ahlfeld and McDonald methods are not very reliable when the head has entered the pelvis and the Perret method cannot be obtained in the latter type of cases. On the other hand, this fact does not detract from their value. When the head has well entered the pelvis it is of less importance to know the size of the child, for then the chances of its producing great trouble are few, unless there be a contraction at the outlet. It shows that there is no marked disproportion between the fetal head and the pelvis.

The methods used for the induction of labor will depend upon individual preference and technical proficiency developed in a given method. My own preference is to start the patient out with one and a half ounces of castor oil, this given at bed time and followed the next morning with ten grains of sulphate of quinin at hourly doses for three hours. This in the majority of cases will bring about contractions and no other interference will become necessary. The labor will steadily progress. If, in spite of this treatment, labor does not come on, a small rubber bag is introduced into the cervical canal and filled with sterile water. This always brings on labor. The first bag may fail, but I have never seen the second fail. For those of you who are unfamiliar with the various methods of measurements I shall explain them hurriedly.

The Ahlfeld method is based upon the fact that the fetus occupies a position in the uterus which is equivalent to one-half its original length and that the full term fetus measures 50 cm. at maturity. This measurement is taken by placing one end of some well curved pelvic calipers against the upper and middle of the symphysis pubis, while the other end is fairly firmly pressed against the breech of the fetus. The reading is then made on the scale of the pelvimeter. This is then multiplied by two, and two centimeters are subtracted for the thickness of the abdominal walls. The result should give the actual length of the fetus.

The McDonald measurement is based upon the fact that the uterus grows on an average of 3.5 cm. each month throughout pregnancy, so that if we have obtained a measurement of 35 cm. we should then have a pregnancy of ten lunar months. This measurement is taken by means of a tape from the top and middle of the symphysis pubis to the top of the fundus of the uterus. You will note here that the Ahlfeld method shows the maturity and length of the fetus, while the McDonald method shows the duration of pregnancy. Ahlfeld, however, has also used his method to obtain the duration of pregnancy. By dividing the end results by five he obtains the time of pregnancy in lunar months, which, of course, can b easily converted into weeks.

The Perret method consists of measuring the fetal head from the occiput to the frontal bone. Every one will say, however, that the occipital frontal diameter is of little consequence in determining the course of labor, but it has been found by careful analysis that there is a definite relationship existing between the occipitofrontal and the biparietal diameters, which interests us mostly in the progress of the fetal head through the pelvis.

Perret advised deducting 2.50 cm. from the occipito-frontal diameter to obtain the bi-parietal measurements. This fixed deduction does not give accurate results as the difference between the occipito-frontal and the bi-parietal increases with the size of the occipito-frontal diameter.

McDonald suggests that measurements of 12 cm. obtained by the Perret method indicating the occipito-frontal diameter should require a deduction of 2.5 cm. in order to obtain the estimated bi-parietal. Measurements of 11.5 cm. obtained by the previous method should require a deduction of 2.25 cm. to obtain the bi-parietal diameter. An occipito-frontal of 11.25 cm. requires a 2.00 cm. deduction, and an occipito-frontal of 10.5 to 11 cm., a deduction of 1.5 cm.

The Perret method cannot be obtained as you will readily see if the head is fixed in the pelvic inlet, but as said before under such conditions there would probably not be any marked disproportion between the fetal skull and the pelvis, and, therefore, such information would not be necessary. Likewise can the Ahlfeld measurements not be taken satisfactorily when the head has entered the pelvis. Therefore the so-called Ahlfeld vaginal method was adopted. This consists of placing one end of the calipers upon the breech as before mentioned, and the other end against the head after the end of the calipers has been passed into the vagina and placed against the fetal head with the cervix of the uterus intervening. This method necessitates strict asepsis and likewise produces considerable pain, and therefore cannot be used in every case.

The Thom's modified Ahlfeld is an improvement on the vaginal Ahlfeld since it is simpler of performance. It consists of introducing the index and middle fingers of the examining hand into the vagina, reaching for the head in the pelvis and keeping the fingers firmly against the head. The one end of the calipers is then placed against the fetal breech and the other end on any selected point of the examining hand. The reading is then made on the scale of the pelvimeter and a deduction is made consisting of the length from the examining finger to the point marked on the examining hand.

At first glance these methods seem rather complicated, but are in fact quite simple of performance after one has obtained a fair degree of practice. We are, with these methods, able to obtain a fairly accurate estimate of the maturity of the fetus, the duration of pregnancy, the size of the fetal skull, and even the weight of the baby. The latter estimate is one that is least reliable and incidentally likewise of least importance.

The estimated weight of the child is obtained by the following method. McDonald states that it has been found that the average weight of the fetus is 3300 gms. It has also been found that a uterus measuring 35 cm. from top of symphysis to fundus (10 lunar months' gestation) will on an average harbor a fetus weighing 3300 gms. For every centimeter which the uterus measures over 35 cm. an addition of 200 gms. must be made to the fetal weight, while for every centimeter below 35 cm., uterine length, 200 gms. should be deducted to obtain the fetal weight.

DISCUSSION

Papers of Dr. Charles B. Reed and Dr. William H. Vogt.

Dr. Otto H. Schwarz, St. Louis, Mo.—The work of Dr. Reed and Dr. Vogt shows the value of taking fetal measurements in order to estimate both the size of the child and the duration of the pregnancy. I feel that these methods cannot be condemned by any one who has not had definite experience with them. They are not new by any means, but have not been universally accepted as being of value. I feel that the man who has had great experience with these methods will undoubtedly be more accurate in his findings and his deductions, therefore, will be more valuable. I feel that any method that involves the closer observation of the patient is of very distinct value. The indications for induction of labor should be considered very seriously in a given case before the pregnancy is terminated.

I have had no great experience with these methods and therefore cannot say of what actual value they may be. However, I might mention that in going over 2468 admissions on the obstetrical service of Barnes Hospital there were sixty-two cases in which the child weighed over 4200 grams. Of these 21 were primiparae and 41 multiparae. Of these cases, 40 delivered between one week before and one week after expected date of confinement from the date of menstrual history; 10 delivered two weeks premature and 12 two weeks post-mature, using the

menstrual history as a method of determining the date of expected confinement. In this series there were 5 fetal deaths. These babies weighed between 4500 and 5100 grams. In two instances there was a diagnosis of simple flat pelvis.

This gives an infant mortality of approximately 7 per cent for this series as compared to the infant mortality in all cases of the last thousand deliveries of 2.75 per cent, and if the private patients alone be considered, 1½ per cent. This is mentioned because a large percentage of these overdeveloped babies were in private patients. Dr. O'Keefe, resident physician, will report a series of post-mature newborns in detail in the near future.

It can readily be seen from the above series that the large baby gives very definite concern at the time of delivery. The application of methods determining the size of the fetus during the last month in these cases, in my opinion, might have been of considerable value.

Dr. George Clark Mosher, Kansas City, Mo.—In the Kansas City General Hospital recently, two internes were discussing a report of a case in one of the neighboring maternity hospitals upon which two men were engaged. It was first essayed by forceps, then by version, and finally a craniotomy was done on the after-coming head. The mother was said to have had a "vesico-vaginal fistula, a recto-vaginal fistula and a phlegmasia," resulting evidently from the lack of harmony in the size of the fetus and the maternal pelvis.

The internes, who had been taught our method of McDonald and Ahlfeld measurements, following the usual pelvimitry which we practice, said: "That case should have been a cesarean. The woman was not measured before her labor."

Students who have had training such as Dr. Reed and Dr. Vogt give in their clinical service are able to determine the dimensions of pelvis and fetus approximately. Thus they are in a position to decide on the question of passage and passenger; to determine the possibility of dystocia at a time when the knowledge will enable the attendant to select a safe method of delivery, voluntary expulsion *per vias naturales*, forceps or version, or, if section is indicated, while the patient is in condition to go through her surgical operation without undue risk of complications and sequelae.

We fully appreciate the value of the paper on the measurement of the fetus and thank both Dr. Reed and Dr. Vogt for their explicit instructions as to the technic of the procedure and the definite results obtained in the interest of the patient.

Dr. Calvin R. Hannah, Dallas, Tex.—Dr. Reed has demonstrated and taught us beyond a doubt that the child *in utero* may be measured with reasonable accuracy. Many operative procedures might be eliminated and many babies might be relieved of injuries at birth if the measurements as Dr. Reed and Dr. Vogt have advocated were practiced.

I, too, like Dr. Reed, find that the internes in Baylor Hospital are exceedingly interested in taking these measurements and checking themselves by the actual measurements of the fetus. Today they have a better conception of a very large fetus and the potential injuries connected with it than they ever have had before.

Dr. C. V. Rice, Muskogee, Okla.—It has been somewhat of a question in my mind when to interfere with a contracted pelvis. We cannot think of that condition alone, but must also give thought to the size of the baby. Some cases that I have noted as "slightly contracted pelvis" have proven to be easy cases, and, on the other hand, some cases marked "large, roomy pelvis" have resulted in long, tedious labors. It is not good practice to allow gestation to prolong after the natural term has passed. If we are not sure from the data given by the patient, we may find the objective signs with the direct measurements of the length of the fetus of great value. I allow my patients with objective signs and measurements to go only one week over time. I then induce labor by first detaching the membrane from the lower segment of the uterus and giving castor oil and quinin. This method seldom fails, but when it does I resort to the bags.

Dr. Edward Speidel, Louisville, Ky.—Obstetrical cases deserve the same care as surgical. In surgery at the present time everything is done to improve the prognosis. Crile has lately shown how the element of fear of an operation affects the prognosis.

The last month of pregnancy is always very trying to the pregnant woman and she eagerly looks forward to her expected date in hope of relief. When that time passes she becomes extremely fretful, impatient and anxious, and when seven or even fourteen days pass before the onset of labor it may readily be conceived that she is not in so good a condition to pass through the ordeal of a labor as she would have been had delivery occurred earlier.

As to the child, aside from the increase in size and weight, it will generally be found that the head of the baby that is post-mature is slow to engage and there is little or no moulding.

Such a head, when examined after the birth of the child, will show the sutures almost closed, the posterior fontanelle obliterated and the anterior fontanelle much smaller than usual.

The essayist uses one rather obscure term in the description of his method of measurements. He speaks of the genital crease. My understanding is that he places the end of the pelvimeter between the labia minora and then pushes it up toward the clitoris until it rests upon the top of the symphysis pubis.

Dr. Geo. F. Pendleton, Kansas City, Mo.—A bag cannot be easily introduced without danger. It requires preparation of sterile material and a knowledge of its special technic. I consider it only a hospital procedure.

I have far over a thousand accurate records of McDonald and Ahlfeld measurements. Do not rely upon one measurement. There should be several examinations to avoid the following pitfalls which I have personally found:

Twins at term have always measured 40 cm. or more.

Seventy-five breech cases followed no stated rules of measurement.

Transverse cases generally measure oversize.

Lightening shortens all measurements and I generally allow 3 cm. to the McDonald, according to the exact descent of the head.

Large uterine fibroids spoil the rule, as also large ovarian cysts.

Immense abdominal adiposity will occasionally measure too large.

Contractions of labor may cause too large or too small measurements.

Lastly, R. O. P. or L. O. P. positions often have McDonalds of 38 or 39 due to the extended head or "erect spine" of the fetus.

I doubt that modified Ahlfeld measurements are of much value. I do consider the McDonald as an added diagnostic point for obstetrics.

Dr. Reed (closing).—I am sure that neither Dr. Vogt nor I would care to have labor induced as a routine, or unless definitely indicated after careful estimation of the pelvis and child by competent observers. On the other hand, I am confident that the more we know about the conditions in the uterus as revealed by the measurements of the child the less reluctance we shall feel to interfere at the proper time.

Dr. Vogt (closing).—My object in bringing this matter before the Association has been purely to stimulate interest in this subject and to try to show that these measurements are of considerable value in the practice of obstetrics.

I do not mean to claim that there are never mistakes made and that we can always get an accurate idea of the size and weight of the fetus *in utero*, but I do claim that the measurements obtained are of sufficient practical value to make the practice more universal. We shall be able to save more babies and make the labor easier for the mother by this method, and certainly avoid bringing into this world enormous babies which may invalid the mother.

EXSTROPHY OF THE BLADDER*

By W. W. Grant, M.D., F.A.C.S.,
Denver, Colo.

"I that am rudely stamp'd and want love's majesty—,
Cheated of feature by dissembling nature,
Deformed, unfinished, sent before my time
Into this breathing world scarce half made up."

The cause of Richard's lament was small and insignificant in comparison with that of a young man of twenty-four condemned to a life of enforced solitude, humiliation and sacrifice, due to the most deplorable congenital defect, which has challenged the best efforts and resources of the most skillful surgeons of the world. Failure and indifferent success have marked every step and page until Maydl, in 1892, transplanted the ureters into the sigmoid by the intraperitoneal method.

The condition is impossible of complete reconstruction, but the trained hand of the surgeon is now able to give some semblance of order and form to the ill-fated body.

Feeling assured of professional interest, I may be pardoned for reporting a case of this rare deformity, which occurs only once in forty or fifty thousand births.

C. B., born at Fairbury, Nebraska, January 17, 1896, was the fourth of six children (all others perfectly normal and healthy).

The patient was five feet, seven and one-half inches in height and when operated upon weighed one hundred and forty pounds (now weighs one hundred and fifty pounds); was well nourished and had good muscular development, with typical exstrophy of the bladder. Since seven years of age he had personally applied the gauze pads to the bladder as soon as they were saturated with urine. The symphysis was separated to the extent of three inches and was united by a strong fibrous band, which enabled him to walk without serious waddling. The toes were considerably everted. The left testicle was well developed and occupied the upper part of the scrotum just below the external ring. The right was undescended and not palpable. Epispadius was complete and the mouths of the seminal ducts were in plain view at the base. The exposed bladder wall, as large as the palm of the hand, was red and vascular and the ureteral mouths occupied the lower part in normal relation to each other; the urine, on analysis, was normal in character and manifestly in quantity. No prostate was in evidence.

His condition was promising for a successful operation, which was performed at St. Luke's Hospital, Denver, Colorado, on May 22, 1920. I am indebted to Drs. R. G. Morrison and C. B. Ingraham, of Denver, for assistance during the operation.

OPERATION

Ureteral catheters No. 8 (French), open at the ends, were inserted to the depth of three inches and stitched with catgut to the meati, but not tied tightly enough to strangle the tissues. The dissection of the bladder mucosa, commencing at the top, was continued above and laterally to within one and one-half inches of the ureters, and below a smaller margin of bladder was left on account of the proximity of the meati and seminal ducts, which were well defined. The dissection of the mucosa was the most difficult step of the operation on account of bleeding, which required the free use of hemostats and ligatures. The deep dissection was easily and quickly performed and the rectum readily exposed. In reflecting the peritoneum with gauze a small rent was made into the peritoneal cavity, which was closed with catgut. No infection or inconvenience resulted.

An assistant, with finger in the rectum, pushed the anterior wall of the rectum well into the field of operation. The bowel was caught above

*Read in Section on Surgery, Southern Medical Association, Fifteenth Annual Meeting, Hot Springs, Ark., Nov. 14-17, 1921.

and below with gloved forceps. An incision two inches long in the longitudinal axis of the bowel was made, the wound held open and the base of the bladder, a little larger in circumference than a silver dollar, was turned over and pushed gently into the rectum, the catheters being drawn through the anus without forcible traction. As will be seen from the illustration, the ureters occupied the extremities of the rectal incision, the left above and the right below, differing in this respect from the Moynihan technic, which placed the entire bladder wall, with the ureters transverse to the incision, and the entire circumference of the bladder stitched to the edges of the rectal incision as illustrated—the object being, it seems, to spread or enlarge the rectal cloaca as a reservoir for the urine. I believed the rectum and sigmoid ample for the purpose without artificial spreading, care being used to prevent undue tension and angulation of the ureters.

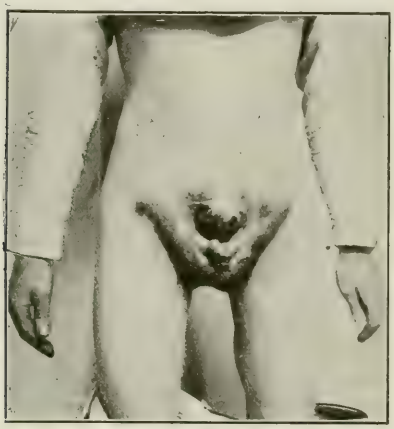

Fig. 1.- Exstrophy of the Bladder. C. B., age 24.

The rectal incision was closed with chromic gut snugly around the ureters, the stitches embracing all coats of the bowel and taking a bite in the posterior, now anterior, surface of the bladder wall, which fixed the mass to the line of the rectal incision, the edges of the trigone being left free in the rectum. A rectal tube was inserted and maintained for five or six days—while the catheters drained the urine satisfactorily into a glass urinal. The quantity of urine was normal after the first day and the catheters were removed on the fifth day. No traction should ever be used in their removal, as this might disturb the smooth healing of the rectal wound. I believe catheters are advantageous also in preventing soiling of the wound by urine during the healing process.

The hiatus left by the bladder transplant was partially closed at the top by undermining the skin—not an easy thing to do because there was neither muscle, perceptible fascia nor connective tissue at this point. The deep and lower part of the wound was stitched fairly well to the inferior line of incision. A capillary drain was inserted for a few days from the rectal wound to the surface. A laxative was given on the fifth day and thereafter a rectal enema of boric acid and salt was administered two or three times every day. Patient had no pain, no increase of temperature after twenty-four hours, and his recovery was prompt, steady and complete. He left the hospital on the tenth day, but was kept in bed three weeks. The rectal douche was the most important feature of the after-treatment and this was continued twice daily by the patient as a permanent routine procedure. I believe this measure useful in the prevention of ascending infection, which is the chief cause of mortality. Furthermore, as an additional precaution against early infection, a rectal catheter, draining the liquid contents of the bowel into a rubber urinal strapped to the thigh during the day time, was used for two months after the patient left the bed.

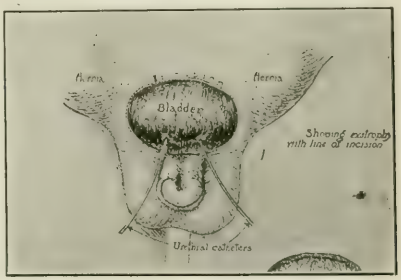

Fig. 2. First stage of operation (by Kanavel).

Although the ureters have an independent blood supply, the preservation of the normal relation of the ureters and base of the bladder gives added protection and nutritive support to the ureters and their valve action when they are transplanted. The operation for epispadias was left for future determination. No attempt was made to unite the symphysis, and I doubt that any operation for this defect should be performed unless in very early childhood. Nature always supplies a strong ligamentous band, while a late corrective operation is difficult, an added danger, and not absolutely necessary to reasonably good locomotion.

Three months after the operation I closed, under local anesthesia, the unhealed wound at the site of the bladder transplant by long-sliding skin flaps from the lateral walls of the abdomen. The right flap uncovered the inguinal canal, exposing and revealing the right testicle, which was about the size of the tip of the little finger and three-fourths of an inch long. It was removed. The flaps, without undue tension, were stitched together, first at the mid-line, then lateral stitches were applied.

The illustrations display the salient features of the operation for the bladder defect.

The patient retained the urine after ten days three or four hours, and in three months six to eight hours, and during the summer following he told me he could sleep all night without getting up once if he did not eat watermelon during the day. This gratifying condition continues today. He is doing manual labor on a farm. He does not pass urine any oftener than the average man in health, and far less frequently than those who are suffering from diseased prostates.

A letter from his mother of date October 21 states that "he is feeling fine, sleeps all night without getting up, and is busy planting winter wheat, from the proceeds of which he expects

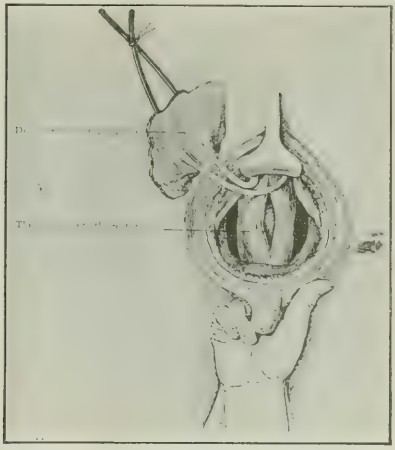

Fig. 3.—Method of Moynihan—transplanting entire bladder wall into rectum.

to pay his doctor's bill." His mother, on account of arduous domestic duties, was unable to give him any education whatever. Now for the first time in his life he is able to work and take care of himself and associate with other people.

I trust I may be indulged in offering some suggestions and fair criticism in dealing with this defect. The early mortality was greater than at the present time and it was about equally divided between septic peritonitis and pyelonephritis. There can be no doubt that the local and the general condition of the patient at the time of operation will influence, probably, decisively the result. With ureteral and kidney infections the condition is not favorable for operation, and the addition of constitutional defects would probably inhibit operation.

The ureter is composed of a fibrous outer coat, a muscular coat with longitudinal and circular fibers and a very delicate mucous layer. Observation shows that the urine escapes in jets, and instantly the meati close as if controlled by valves or action that answers the purpose of a sphincter. Tuffler, in 1890, spoke favorably of preserving this influence in operative procedures and Moynihan considered its preservation important in his report. I doubt that any artificial

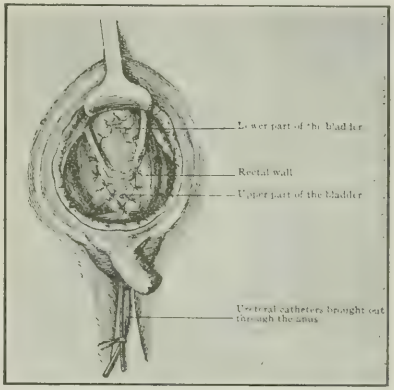

Fig. 4.—Moynihan. Showing base of bladder and ureters in position in rectum and wound closed.

provision can be devised which will as effectively guard the ureters and kidneys against infection as will the preservation of the integrity of the ureters and their relation to the trigone. With this technic the blood supply to the ureters is also better protected than by cutting or stripping the ureters too closely in any operation to be performed for this condition.

The interesting experiments of Coffee on the common bile duct and ureters justify the application of the method to the ureteral transplant in any operation which sacrifices the distal ends of the ureters and the base of the bladder. When this is done the technic of Coffee-Mayo doubtless meets the indications well. With this technic the operation is done in

two stages: one ureter is transplanted to the sigmoid and later the other to another part of the sigmoid or to the upper rectum. The ureters are placed obliquely for a certain distance between the mucous and muscular coats and at the lower end of the incision, the mucous membrane is incised and the ureters fixed within the bowel by stitches from within outward, which are tied over the peritoneal coat.

It would be a protection against possible infection to make a small incision of the peritoneum, tie the two ends of the

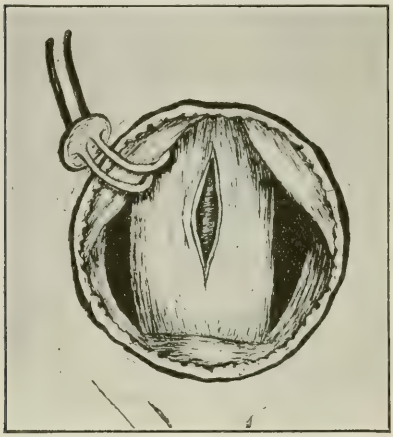

Fig. 5.—Bladder wall retrenched with ureters intact and catheters in situ ready for insertion into the rectum.—(Grant.)

retention sutures beneath the peritoneum, and close the peritoneum by a stitch, though the purse-string suture of Coffee would doubtless answer the purpose. By this procedure Coffee states that the ducts will not dilate and that the "static intraintestinal pressure," due to intestinal gases and liquids, will close the ureters against infection. His experiments prove to his satisfaction that if the cut end of the ducts are implanted directly into the bowel, the ducts dilate and ascending infection is more likely to ensue. Living tissue, when cut or divided, tends to contract, in the process of healing by granulation, and this will occur when any duct is divided and transplanted by either the direct or oblique and indirect method of procedure. What the ultimate effect will be on the caliber and functioning of the ureter and bile ducts when so treated is probably not definitely determined. In the extraperitoneal operation of implanting the trigone and ureters bodily into the rectum, the normal action of the ureteral meati is preserved. With the ease and facility of keeping the rectum comparatively clean by frequent evacuation and douches there is less danger of ascending infection than by any other technic or

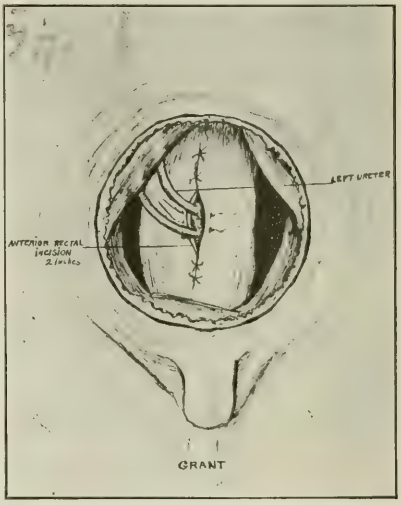

Fig. 6. Appearance of ureters and wound after being transplanted into rectum. (Grant.)

procedure, and the "static intraintestinal pressure" is, in my opinion, a negative factor in the rectal operation. Besides the chief fecal cloaca is, I believe, the sigmoid and not the rectum.

To divide the ureters before entering the bladder and implanting them into the sigmoid intraperitoneally by the Coffee-Mayo technic, may be the operation of choice in malignant and tuberculous conditions of the bladder, but the extraperitoneal operation of Bergenhem-Peters, modified by Moynihan and others, should

take precedence over all others in exstrophy of the bladder. This is the complete one-stage operation, involves less danger and is more expeditiously done.

The Harrison operation, modified by Bottemley, of dividing the ureters between kidney and bladder and planting the ends respectively into the loins or back, does not impress one favorably. The objection is the same as to the existing condition requiring operation and the danger of infection is just as great. In this view, however, no dangerous operation need be considered, for the bladder mucosa could be dissected to the ureteral orifices and the same kind of apparatus could be applied as that to the back for a urinary receptacle which would possess

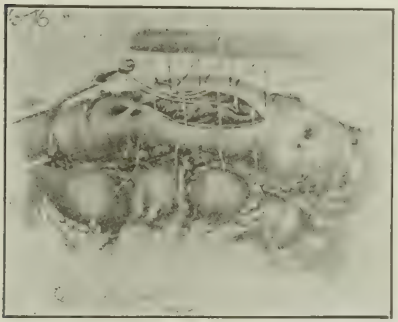

Fig. 7. Coffee-Mayo technic, showing transplantation of severed ureters into the sigmoid.

the distinct advantage of being under the direct observation and control of the patient. I can see no justifiable reason for this operation. The great desideratum is the comfort and convenience of the patient.

All the operative procedures attempted and employed before Maydl transplanted the entire bladder into the sigmoid have been signal failures. The mortality from the Bergenhem extraperitoneal operation is 15 per cent; from the intraperitoneal, 28 per cent. By old methods 50 per cent have died before ten years of age and two-thirds before reaching maturity. Under improved methods and modern asepsis and technic we anticipate more satisfactory results in the future.

CONCLUSIONS

(1) The extraperitoneal implantation of Bergenhem-Peters, modified by transplanting ureters and trigone intact and through one anterior rectal incision, is less dangerous and more quickly done, and is the operation of choice.

(2) The two-stage operation is neither necessary nor desirable.

(3) The importance of preserving the blood supply and the valve action of the ureters in transplanting the ureters and base of the bladder intact is of distinct value as to the immediate success of the operation and in the prevention of ascending infection, and is the operation of choice.

(4) In advanced malignant and tuberculous diseases of the bladder, the Coffee-Mayo operation and technic is the operation of choice.

(5) The rectal cloaca, as a urinary reservoir, is ample without operative effort to increase it.

(6) The rectal mucosa becomes almost as tolerant of the presence of urine as the normal bladder and, I believe, the danger of uremia from bowel absorption of urine is very slight.

(7) Urinary control is essential to any successful operation upon the bladder and it is effectively and satisfactorily obtained in the above operation.

(8) The consensus of surgical opinion is unfavorable to operation for this condition under five years of age.

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DISCUSSION

Dr. A. I. Folsom, Dallas, Tex.—The subject of exstrophy of the bladder is one that has caused all of us concern. It is a condition that has baffled the devices that have been put forward for its relief very consistently from the time it was started until now, and even now we find ourselves differing in our opinion as to the ideal operation.

There are two or three things to be called to attention in any discussion of this condition. First, the preservation of the anatomy of the kidney against the ascending infection from the bowel. This is the crux of the whole problem. If the operation as related does that, it will prove itself to be the operation of choice. There are some fundamental facts in connection with this situation which will mean that this will not be the operation of choice.

Wherever we find ureters outside the bladder we find a hydro-ureter. That is true in cases where there is no exstrophy, but simply an extravesicle implantation of the ureter, and in these cases of exstrophy you will nearly always find a hydro-ureter and more or less relaxation of the sphincter of the ureter.

This fact should be taken seriously into consideration in this matter, because fundamentally that is the whole thing. If the sphincteric action is maintained it will give an added advantage to this operation, but personally I do not believe that it exists in these cases.

The operation of Coffee, which was studied by Coffee and then clinicalized by the Mayo Clinic, I believe is the operation which offers us the ideal procedure.

The question of the two-step operation or the one-step operation is of no real significance other than that it has been called to the attention of all who have operated upon these cases that there is a definite tendency where all of the urine is diverted into the bowel at one time to see a rather stormy period which results from the reabsorption of the urine. That is, that it is probably best to divert the stream of urine piecemeal into the bladder rather than to drain the entire stream into the bladder at one time, because until the mucosa of the rectum accustoms itself to the urine there is a large percentage of absorption.

I have had the fortune to have operated upon one case similar in its details to the case reported by Dr. Grant. I did the two-stage operation by the method advised by Judd, beginning with the right and later the left. If any of you have tried to extraperitonealize the sigmoid I hope you have had better luck than I, for I could not separate the peritoneum from it. I then transplanted it transperitoneally, and the man made a good recovery. He had a stormy convalescence, but did get well after four weeks in the hospital, and is now well so far as the diversion of the urine is concerned.

The ideal time for operation is a practical point that is frequently overlooked. In adults the conditions are not ideal, neither should these cases be operated upon in the early years. The ideal time is between the ages of six and twelve, and those that are seen should be advised of that fact.

Dr. Grant (closing).—In addition to the greater danger of the intraperitoneal and the two-stage operation, I assume that no surgeon would sever the ureters near the bladder (the usual procedure) and attempt to transplant them to the sigmoid, except by the intraperitoneal route.

SPINA BIFIDA WITH ASSOCIATED DIVERTICULUM OF BLADDER (URACHUS) AND PYONEPHROSIS*

By Joseph H. Smith, M.D.,
Memphis, Tenn.

Realizing that the Urological Section is more interested in the associated urinary malformations of spina bifida, we shall not dwell upon that condition any further than to give a definition of it. Keen defines spina bifida as,

"A congenital defect of development which involves a cleft or defect of one or more of the neural arches with the protrusion of a hernia-like sac formed of the spinal membrane with or without the cord or nerve roots."

I wish to discuss mainly diverticulum of the bladder which is the most interesting anomaly of the particular case which I shall later present to you.

Diverticulum of the bladder, Cabot states, should apply to those cases of pouches of congenital origin occurring most frequently in certain positions but occasionally seen in almost any portion of the bladder, not due to defective development or lack of closure of recognized structure. He uses the word diverticulum interchangeably with sacculation. My idea is that the word diverticulum should apply to a distinct cavity connecting directly with the bladder, sacculation to shallow depressions in the bladder wall.

In the title of my paper I refer to diverticulum (urachus). What I prefer to call diverticulum (urachus) Keyes defines as urachus cyst. His definition of urachus cyst is as follows:

"Toward the middle of intra-uterine life the urachus (the canal connecting the bladder with the umbilicus) becomes obliterated. Exceptionally it remains patent throughout or at one extremity. This patency gives rise to a urachus cyst or fistula as the case may be. Urachus cyst is exceedingly rare. I have seen one in an adult which formed a large, irregular, fluctuating hypogastric tumor."

The word cyst, to my mind, applies to a circumscribed cavity without connection with the bladder. Therefore for the rea-

*Read in the Section on Urology, Southern Medical Association, Fifteenth Annual Meeting, Hot Springs, Arkansas, November 14-17, 1921.

sons given I prefer to call what Keyes designates as urachus cyst, a diverticulum (urachus). Nevertheless, any dilatation, fistula, sacculation or trabeculation no matter where its location, that is subject to retention and infection is clinically a diverticulum.

The etiology of diverticulum of the bladder is still a mooted question among writers upon this subject. Some contend that diverticulum is always congenital, others contend that it is always acquired. I believe that it is both congenital and acquired.

The acquired type of diverticulum is probably the most frequent. It is no doubt most often recognized among urologists because of the fact that obstructive diseases themselves, which are the causative agents of acquired diverticulum, come under our observation for treatment. Also the acquired diverticulum *per se* is responsible for more systemic symptoms than is the congenital type. No doubt all of you recall instances of congenital diverticula, pyonephroses and other situs of focal infection that have come under your observation which have caused no great inconvenience. This is due, I believe, to the presence of a high bacterial sensitation in an infected congenital diverticulum which does not hold true in the acquired type. In the acquired type the infection is more recent and obstruction always more acute with less anaphylaxis.

The frequency of diverticulum is greater in the male than in the female in the same proportion that the number of organs in the male urinary tract subject to inflammation and obstruction, is greater than that in the female tract. Also the more frequent disease and improper treatment in the male, bring about those conditions of back pressure that are causative agents in the formation of a diverticulum. Cabot reports the occurrence of diverticulum as about ten in the male to one in the female. In a series of 69 cases collected by Fischer, Cabot and Lower there were 59 cases in men and 10 in women. I believe the percentage is even greater than these statistics show. No doubt the occurrence of prostatism with its associated retention and strain is responsible for a large number of acquired diverticula in the aged.

The symptoms of diverticulum of the bladder such as retention, inability completely to empty the bladder, frequent desire to void, fetid urine, cystitis, urethritis and the microscopic picture of abundant pus, are too well known to urologists to dwell upon.

The advent of the cystocope has made the diagnosis of diseases in the urinary tract as exact a science (if not more so), as the diagnosis of diseases in any other portion of the anatomy. In the hands of competent cystoscopists, pathology in the urinary tract is easily recognized. A diverticulum of the bladder is not always easily recognizable. Often the orifice of the diverticulum is small. At other times it is easily confused with shadows of trabeculae, and again insufficient dilatation of the bladder might fail to bring the orifice into view. The bladder should be carefully searched in its entirety whenever there is a suspected diverticulum, as there is no specific location in which we expect to find it. Its occurrence is frequently around the ureteral orifices and it is often found in the vault, fundus and prostatic pouch, but may occur in any portion of the bladder wall.

The exact size, location, direction of its fundus and its relationship to other anatomical landmarks must be ascertained by the aid of the x-ray. Pictures should be taken of the distended bladder from several positions to get the best results in this regard. The bladder and diverticulum should be distended with some solution impervious to the x-ray, such as thorium or barium. Personally I have had excellent results with an emulsion of barium and olive oil and use this solution routinely. I have procured excellent roentgenograms of the bladder, without irritation. I have also obtained good results with Robt. Knox's solution, 20% solution of barium sulphate in oil of sweet almond.

The treatment of diverticulum of the bladder is surgical. The following is a

report of the case, with lantern slides, which encouraged this paper.

Mr. J. H. R., Ontario, Canada, age 28, white. General physical findings not given in this report.

History: Patient presents himself with history of having had some few months ago a urethral discharge and comes to me with recurrence of same. He also complains of inability completely to empty the bladder, frequent desire to micturate with feeling of fullness in bladder region after voiding. States that on two different occasions he has passed some blood and after evacuation of bladder there is a flow of chalky or buttermilk-like residue. Urine is fowl smelling and offensive. There is no pain except the persistent desire to micturate and no other physical discomfort. He did have chills or rigors upon several different occasions but he paid no particular attention to them.

Examination: Patient small in stature, well nourished appearance. Curvature of spine anteriorly in sacro-lumbar region. There is a meningocele at this point the size of a man's doubled fist. Patient complains of pain, nervousness and headache upon pressure or manipulation of same. Penis, normal. Testes, normal. Scrotum, normal. Prostate, normal. Inguinal region shows no adenopathy or hernia. Prepuce, redundant. Endoscopic examination shows slight posterior urethritis. Cystoscopy shows, trigonitis (which cleared upon later irrigations), bladder markedly trabeculated particularly around the lateral walls and *bas fond* but the bladder more or less trabeculated in its entirety. No stones. Funnel shaped orifice of diverticulum (urachus) surrounded by trabeculations.

Right ureteral orifice had to be dilated before catheter would pass. The left ureteral orifice misplaced downward probably due to contracted bladder floor. The right kidney is practically normal, compensated kidney with [illegible] collection of 0.6 c. c. of phenolsulphonephthalein output of 55 in two hours. The left kidney could be drained although the catheter could be passed only about 2 cm., where it was obstructed. The content of the left side was approximately 200 c. c.

Culture from right kidney shows colon bacilli, diplococci and pus.

Culture from left kidney shows colon bacilli, diplococci and pus.

RESUME AND X-RAY FINDINGS

(1) Spina bifida, failure to close of the neural arches of the third, fourth and fifth lumbar vertebrae. Some contraction and distortion of pelvic bones. Curvature of spine over this region. Supernumary or accessory first lumbar rib. Meningocele over sacro-lumbar region.

(2) Marked trabeculation of bladder in its entirety, distorted left ureteral orifice and orifice of diverticulum (urachus).

(3) Diverticulum extending far up in the right hypogastrium, contents approximately 500 c. c., forming large fluctuating tumor when distended.

(4) Pyonephrosis of left kidney, large pelvis with abrupt termination of the distension downwards of the thorium shadow which leads me to believe obstruction due to aberrant blood vessel. Lower shadow superimposed upon pyonephrotic shadow is due to dilatation of ureter (hydroureter).

I recommend left nephrectomy (extraperitoneal), closure of diverticulum with drainage of sac without removal through a suprapubic opening. The bladder should be stripped far back from the parietal peritoneum and on account of the numerous trabecular, suspended from the fascia. These suggestions are made subject to their practicability at the time of operation.

Dr. H. P. Conley was the roentgenologist who examined this case.

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DISCUSSION

Dr. John R. Caulk, St. Louis, Mo.—The patient, of course, has a dual reason for having his urinary condition with the spina bifida. It is either secondary to his neurogenic changes or from congenital reasons, as in the formation of hare-lip or club-foot. Such congenital changes are not unusual. Dr. Chute, of Boston, called our attention to these changes several years ago, not the things that are visible, but the spina bifida occulta. He called our attention to the frequency of their occurrence and we may have overlooked them as the cause of the nerve changes in the bladder. Spina bifida may occur anywhere in the tract, but is more often found low down.

I saw a very interesting case a few days ago in a fellow with a gunshot wound. He got a bed sore and necrosis and with the necrosis had complete retention. Immediately upon removal of the necrosed bone and tissues he obtained complete relief of the urinary distress. When it healed and later there was a blood clot in the wound, he had retention again. Upon removal of this the urination again cleared up, showing the relation of nerve changes in this neighborhood. As to whether to take out the diverticulum or get the patient in shape to repair the nerve defect is not for me to say. In an elderly individual one can hope for very little from nerve repair. But in young children this should be relieved promptly, and probably late results will not occur. I take it that the diverticulum was congenital. The true diverticula of the bladder are congenital rather than of the acquired type.

Dr. J. L. Morgan, Memphis, Tenn.—We find cases of spina bifida, tabes dorsalis and posterolateral sclerosis producing a change in the bladder which is associated with trabeculation. A diverticulum, in my opinion, is of congenital origin whether our attention is called to it early or in adult life.

I believe it was Nitze who first discovered that in association with tabes dorsalis there is an associated trabeculation of the bladder. Orth and others have been able to demonstrate post-mortem that practically every case of tabes dorsalis and spina bifida show trabeculation of the bladder, and in trabeculation they also find diverticula in a great many cases.

As to treatment, these cases which are not giving the patient any particular trouble do not need operative procedure. At least I should not insist upon immediate operation. If they develop a diverticulitis, then we have to treat them differently, and usually surgical procedure offers the only hope for relief. The hydronephrosis and hydroureter are probably secondary to the bladder condition, as there is more obstruction to the outflow of urine, and in all probability the trabeculation is due to the nerve lesion which we find in most of these cases.

Dr. G. T. Tyler, Greenville, S. C.—One doing general surgery meets a variety of cases. I should like to add to the case reported this afternoon one that I had some years ago. In this there was spina bifida with the usual history of this congenital defect. The patient was entirely well until about eight years of age, when he began to have incontinence of urine and frequent loose stools. That condition was present at the time I saw him, in his twenties. His vertebral defect was in the lower lumbar region. At operation I found only a meningocele, communicating with the spinal canal by a small opening. A satisfactory closure was made. There was a diverticulum of the posterior urethra. There was also at the site of each urethral orifice an elliptical defect in the muscular coat of the bladder, into which the finger could be easily admitted. The ureteral orifice lay in this depression. He has had occasional attacks of kidney colic on the right side. X-ray has not demonstrated stone. I divided the internal sphincter, trying to convert the diverticulum and the bladder into one cavity; but I have failed to relieve him. He wears a urinal. During the day he has little trouble, but at night on lying down there is an escape of pus which is not lessened by bladder irrigations. He works in an automobile shop and gets along fairly well.

Dr. Smith (closing).—Dr. Morgan states that he does not believe in surgical interference in some types of pyonephrosis. To a large extent he is correct, but when these symptoms come on with a continual desire to urinate and a septic condition, where there is absorption from an infected pyonephrosis, we should operate in the presence of acute inflammation. Closure of the diverticulum in the cases such as presented would be a matter of small moment. As I suggested, it should be done in two stages, closing the urachus and then completing the operation later. It would be impossible to do it all at one time.

POST-OPERATIVE CARE IN SURGICAL CONDITIONS OF THE KIDNEY*

By H. W. E. Walther, M.D., F.A.C.S., New Orleans, La.

The importance of a careful pre-operative study of urological cases has been duly emphasized. Likewise the advantages of many new refinements in operative technic have received the consideration they merit. Little, however, has been written on post-operative care. That good after-treatment often spells the difference between success and failure few will question. Particularly is this true in certain surgical conditions of the kidney.

The statement is made that renal cases are easier to handle than abdominal cases because of the absence of nausea, vomiting and distention; that if the patient is kept at rest, fairly free of pain, with a good daily output of urine and regular bowel evacuations, little trouble is to be expected. Such statements undoubtedly hold for the majority of renal operative cases. There remains, however, a definite number of patients who, following some surgical procedure on the kidney, do not have so smooth a convalescence as might be desired. That urologists are less annoyed with untoward symptoms in handling these cases than general surgeons seems to be borne out by the statistics collected by Thomas who, in reviewing the operative reports of 26 representative general hospitals, found that in 88 nephrectomies done by general surgeons the mortality rate was 25.9 per cent, while in 259 nephrectomies done by urologists the mortality rate was 7.7 per cent.

In considering the management of these cases the phases that most attract our interest are: (a) the care of the wound; (b) the care of the patient; (c) the means of preventing complications; and (d) the treatment of complications after they arise. Obviously the modes of procedure will differ with the character of operation performed. The technic of wound closure, type of drain, etc., will be influenced not

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only by the type of infection present, but also by the extent of the operation. Only that type of case which has been operated upon by lumbar incision will be included in this discussion. The closure of the wound proper, as well as the personal hygiene of the patient, being thoroughly understood, will not be considered.

In dealing with drainage following renal operations we meet with wide divergence of opinion. At the Mayo Clinic and in some of our urological centers much effort is exerted at primary suture. While the method has its enthusiastic adherents it would seem but sound surgical judgment to reserve such a procedure for decapsulation and suspension operations. Personally, I drain every case where parenchyma has been incised or pelvis opened, universally employing large gauze-rubber-dam drains. I can not subscribe to the methods of some in using stiff rubber tubing placed down to, or allowed to remain within, the kidney. Two cases of hemorrhage, one ending fatally, observed in the services of confreres, make me shrink from using a drain of material so rigid as to make me feel uncertain of the outcome.

Wounds that are drained are left with dressings undisturbed (except where there is copious pus or urine discharge) for from two to three days. Thenceforth the drain is withdrawn, one inch daily, and excess cut away, until on the fifth to seventh day the drain is entirely out. Where primary suture of the wound has been possible, the operative site is often left alone until the silk-worm sutures are to be removed. Where the pelvis has been opened I practice ureteral catheterization as early as it is feasible and lavage the renal pelvis. Crowell has shown conclusively that post-operative pyelonephritis deserves our prompt and energetic attention. This is particularly true where pyelotomy has been done for removal of stone.

Urinary fistula does not commonly occur where the pelvis has been sutured or where the capsule and perirenal fat have been brought together over incisions in the renal cortex. Should urine come from the wound after the seventh day, ureteral catheterization should be practiced to establish patency. Garceau catheters, size 11 F., are admirable for this purpose, and when indicated may be left *in situ* for several days in order to re-establish the urinary flow down the ureter.

As to the dressings employed, plain dry sterile gauze, held in place by adhesive strips, in not too bulky a quantity, changed as required, is all that is necessary. The dictum of Lower that post-operative hemorrhage can be discovered more promptly through light dressings than through ponderous ones, applies equally well to kidney surgery as it does to surgery of the prostate.

The immediate after-care to patients as relates to shock deserves careful attention. Keeping the patient quiet, warm, away from draughts; guarding against pain by hypodermic administration of morphin sulphate, pantopon, papaverin or the oral administration of some anodyne; and establishing diuresis by giving water freely either by mouth, by hypodermoclysis, by proctoclysis or by infusion, will do much toward restoring the patient.

The bowels are opened on the second day by a mild saline. The patient is usually kept in bed from seven to ten days. Nothing by mouth but liquids for the first twenty-four hours avoids unpleasant gastro-intestinal symptoms. Then the diet is increased as rapidly as is consistent with the patient's condition: first full liquids, next soft foods, and then full diet. Hexamethylenamin and acid sodium phosphate are given by mouth to aid in minimizing urinary infection.

Complications in renal surgery may be placed under two main heads, namely: (a) the immediate, and (b) the remote. Of those apt to occur at operation might be mentioned injuries to the pelvis or cortex and injuries to the diaphragm, peritoneum or intestine. Hemorrhage from accidental tearing or cutting of an aberrant vessel is always to be anticipated. We are indebted to Rupert and to Eisendrath for their painstaking studies on variations in the renal vessels and for emphasizing the importance of recognizing them at operation. With a more adequate exposure of the parts, by using an incision such as Mayo advises, the dangers just alluded to should be minimized.

Of the remote complications might be mentioned: (a) hemorrhage, either from a defective ligature or from a sloughing of the tissues about the renal pedicle; (b) extravasation of urine into the perirenal space; (c) infection of the wound, with or without abscess formation; and (d) anuria.

Accidental tears to pelvis or to cortex should be promptly closed with fine catgut. Injury to either diaphragm, peritoneum or intestine demands instant suture. Of these latter three accidents at operation, injury to the intestine with subsequent fecal fistula formation is at times very trying. These fistulae are usually noted on the fifth day, and while some will close spontaneously, others require a secondary operation.

Hemorrhage at operation, which can not be arrested by hemostatic forceps and ligature, is best controlled by packing. Whether the gauze pack employed should be dry or saturated with one of the thromboplastin preparations, still remains a mooted question. I have used coagulin a number of times with most pleasing results in cases of intractable bleeding from wounds following operations upon the kidney. In dealing with short pedicles in doing nephrectomy it is often much the wiser plan to leave clamps in place for several days rather than take chances of ligatures, insecurely adjusted, slipping off. Packs are then placed around clamps and cigarette drains inserted to take care of any small ooze or serum exudate. In secondary hemorrhages the pack again is our most valuable hemostat. In some rare instances following a nephrectomy secondary hemorrhage may become so serious a matter as to demand cutting down on the kidney and where bleeding can not be controlled in the usual way, nephrectomy becomes imperative to prevent exsanguination.

Urinary extravasation, wound infection or abscess formation require free incision and drainage. Occasionally infection following nephrotomy may so jeopardize the patient's life as to make secondary nephrectomy imperative.

Although not exceedingly common, anuria, when it does occur, furnishes a complication for which we nave no definite plan of treatment and in which the prognosis is always grave. With anuria we have to deal with a complete retention within the body of all substances normally excreted by the kidneys, the so-called urinary poisoning of Ascoli. The tissues promptly flood with the nitrogen waste products. Nellis B. Foster conceives that death frequently ensues in anuria not alone because of an existing chronic nephritis of hypertensive type, but because of a superimposed cardiac dilatation and insufficiency. This heart failure is attributed to the fact that the increased volume of urine necessary to carry away the increased nitrogen waste transfers the burden from the kidneys to the cardiac muscle. The forcing of fluids either by mouth, hypodermoclysis, proctoclysis, infusion or by any combination of these has long been routine. Administration of diuretics has aided little. Ureteral catheterism, with or without lavage of the renal pelves, has been much practiced. Injecting hot water has advocates. In four cases in which I used it, good results were obtained in two cases. Hot fomentations to the loins, hot packs or hot sitz or vapor baths are used. Decapsulation and nephrectomy with pelvic drainage are advised for extreme cases. Livermore has recommended decapsulation, incising the cortex and inserting a gauze wick (saturated in 10 per cent ichthyol in glycerin) through the cortex into the pelvis.

At the present time the means at our disposal for combating anuria are extremely limited. Let us earnestly hope that with the wider application of blood chemistry to urology a stage may be recognized (call it a pre-anuria stage if you will) wherein the clinician will be able to decide whether or not surgery can safely be resorted to without danger of completely arresting renal function.

In presenting this subject it was obvious to the writer that nothing new would be contributed. Nevertheless, it was felt that a recapitulation of the fundamentals underlying the post-operative management of surgical conditions of the kidney

would serve some useful end. The writer hopes that this paper will stimulate further clinical research in post-operative anuria.

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DISCUSSION

Dr. George R. Livermore, Memphis, Tenn.—I agree with Dr. Walther concerning drainage in kidney operations. I never like to cut into a kidney and fail to drain. Shock often follows in these cases, because we are not careful to keep the patient warm: warm in the operating room, in the halls, and after he is back in bed. The giving of large quantities of fluid, as brought out by Dr. Caulk in a previous discussion, is one of the best means we have of preventing shock. I like to give these patients 500 c. c. of saline solution on the operating table and 250 c. c. per rectum before they come to the operating room. The idea of water-logging these patients is ridiculous. Urotropin before operation is a good procedure.

In kidney surgery, a large incision should be used. There is nothing more harmful than to try to take out a kidney stone through a small incision in order to brag about the scar afterward. You can do so much better work through a wound large enough to permit good kidney surgery, and it does no harm if it is properly closed.

You can leave the clamps on when the pedicle is short and difficult to ligate, which is preferable to having your ligature slip after removal of the clamp.

In anuria, with edema, fluids are not indicated and we must rely on diuretics, carthartics and hot packs. If there is no edema you can not give too much fluid. If the blood pressure is too high nitro-glycerin may be used to advantage. If low, we can raise it with caffein sodio-benzoate and digitalis, taking care not to over-tax the heart muscle.

Dr. Walther said that medication did not do much good, but I believe diuretin in 15 grain doses in essence of pepsin helps. Renal lavage may also be of value and is well worth trying, and in some cases my method of decapsulation, nephrotomy and packing the pelvis of the kidneys with 10% ichthyol in glycerin tends to reduce congestion and bring about diuresis.

Dr. T. N. Black, Hot Springs National Park, Ark.—Many of us are prone to neglect post-operative care of our kidney cases. The maintenance of blood pressure during and following these operations is important. Nothing is more important, as Dr. Caulk brought out, than forcing fluids, but, in addition, I find medication valuable. Digitalis both before and after the operation I think is one of the best drugs for keeping up blood pressure and promoting diuresis; or, in case of nausea and vomiting, digitalin by hypodermic. Following these operations we keep a very close tab on the pressure, and by the intravenous administration of saline and the use of digitalis we are able to keep it at the proper level. There would be fewer cases of anuria if we all followed this procedure.

Relative to the question of drainage, I cannot agree with Judd whom I heard say, "When in doubt, do not drain." The proper drainage, such as Dr. Walther has described, can do no harm and may be the means of saving the patient's life. Regardless of an apparently clean wound, drainage should be resorted to and properly handled after the operation.

Dr. Louis Frank, Louisville, Ky.—A point of extreme interest is suppression of urine following nephrectomy. I have had the unfortunate privilege of having had such an accident in the presence of two kidneys primarily, the one being removed for tuberculous disease, and we have also seen several cases of anuria following unilateral ureteral calculus. It was this last condition which led me to study the question of anuria. We did some experimental work in the ligation of one ureter to see if we could bring this about and to see, if possible, what had happened in the cases of ureteral calculus obstruction. I am inclined to believe the essential cause of anuria in unilateral calculus obstruction is the same as that which produces anuria following unilateral nephrectomy. My cases were observed some years ago and were reported before the Southern Surgical Association, as was the one of anuria following nephrectomy in which the young woman lived for four weeks without secreting urine at all and with no evidence of uremia, except as shown by the blood findings.

Our conclusions after a study of these cases and of our experimental ligations and unilateral nephrectomies (and this brings up the question which Dr. Caulk discussed in the previous paper), were that the anuria was caused by a marked congestion in the opposite kidney. We always found in our experimental work that these kidneys were very large and the veins and arteries filled. It seems that this overloading on the arterial side was so great that the venous side was unable to take care of it, so that soon the circulation practically ceased. We have thought this was what happened in the sudden emptying of a very distended bladder in the individuals who had damaged kidneys with back pressure and showed marked urea retention. We are sure it is not necessary, as has been stressed by some pathologist, that there be preexisting disease of the other kidney. This might be a very hard thing to demonstrate.

We have practiced renal lavage and believe it is a very good thing, but in this single case of anuria following unilateral nephrectomy we did not succeed in re-establishing urinary output. We believe the suggestion of Dr. Livermore is an excellent one: that is, to expose and decapsulate the entire kidney, thus getting rid of the congestion and permitting reestablishment of circulation. I have seen in one case of calculus obstruction, relief follow and urinary output re-established by passing a ureteral catheter above the point of obstruction and leaving it in. The kidney at once began to excrete and in the next 36 hours the kidney which had been obstructed put out a greater amount of urine than the one which had not been obstructed. We had an excellent opportunity of studying the urine in this individual. After the primary output when there was some pus and blood, there was absolutely no

evidence of disease as shown by the urinary findings. We know this is not always an accurate index as to the exact condition of the kidney.

Dr. Victor D. Lespinasse, Chicago, Ill.—The question of anuria of all varieties is one that I have had some experience with. The congestion Dr. Frank speaks of was brought to my mind experimentally in 1905-6, when I was transplanting kidneys. In ligating one ureter you have a congestion that will not only involve the perineal tissues but may infiltrate the tissues from the diaphragm down to the pelvis and the whole iliac fossa will be filled with edema. Some time ago I saw a little article about the intrapelvic injection of adrenalin to relieve this congestion and cure anuria. That appealed to me as being a rational procedure and it so happened that I had occasion to try it twice, but on neither occasion was it successful. The first case was a prostatic and he died, the autopsy showing a very small red kidney. The second case was rather interesting. The man had a stone in the left kidney. It was not producing obstruction but the kidney was slightly hydronephrotic and pyonephrotic. Both ureters had been catherized and urine obtained from each. Consequently the surgeon went ahead and removed the stone from the left kidney. From the time of the operation until the time that I saw him, a period of three or four months, he had passed no urine from his bladder. He was passing all his urine through a drainage tube. We catheterized his right side and got no urine but the catheter went up to his kidney. We made a pyelogram and obtained a distorted pelvis outline, in the same way that we get retraction from a kidney tumor case. We injected adrenalin and nothing happened. It has been about eight months since we saw him and he is still alive but still passing no urine. There was no gross lesion of kidney function at the time of operation. Whether this was a massive venous engorgement that distorted the kidney I do not know. He is going along but is still below par, for the left kidney is not of sufficient value to keep the bodily functions normal.

Dr. John R. Caulk, St. Louis, Mo.—We all get complications in kidney surgery sooner or later. From listening to the paper one might believe that they are common. I hope the general practitioners will not carry away that impression. As a rule there is very little trouble after kidney surgery. There is usually the most pleasant recovery of any that I know. The keynote is pretreatment and it is extremely rare to see trouble after operative treatment. If the patient is treated by indwelling catheter and lavage and is in good condition it is rare to have any trouble.

If one is careful and quick in the operation, gives the proper anesthetic and handles the tissues properly, shock will be very rare. We have had 300 cases of kidney surgery and except where we had to go in for acute conditions with patients in extreme conditions there was only the slightest shock. They seldom needed anything. There is very rarely distension, and rarely vomiting. We have had only eleven cases of vomiting after the first one or two times. There has been no persistent vomiting, no hemorrhage except in two individuals, and they both died. They both happened to be neurological cases.

If one is careful in his technic, gets the proper exposure and has his patients properly prepared he very seldom has to worry about his patient after kidney surgery.

About the pedicle, I am much opposed to leaving on clamps. I saw one patient die after breaking his clamp by turning over in bed. With proper exposure I have never had much difficulty in getting the pedicle. With care and patience you can usually get it and a kidney operation seldom takes over half an hour. There is one trick about a pedicle. Get it free and put on a big clamp. If you have not one, get one. The best one is a large, curved, massive clamp, I think a uterine clamp with a gradual curve, not an acute angle. After the pedicle is lifted up, then cut the pedicle far enough away from the pedicle clamp to leave some tissue and then clamp each vessel on top of that original clamp with an Ochsner clamp and let the assistant hold it. Take a long catgut, double 2, 20 day suture on a needle and you have your pedicle three ways. After you have done that, make a figure 8 around the clamp and tie. As you tie off, the assistant holding one side of the clamp in one hand releases the pedicle clamp and your pedicle will not get away from you. This method has given me a great sense of security.

Dr. Walther (closing).—If we had more such reports as Dr. Frank's and the cases followed up we should get some literature on anuria.

Everything Dr. Caulk said about the minimum number of complications with kidney surgery is perfectly true. But I do maintain that we get unfavorable results sometimes, and they are serious enough to be brought before the profession once in a while. I refer particularly to cases that have been studied carefully preoperatively with all functional tests, blood pressure and what not, and that have turned out badly following operation. We have been blamed for depending upon the laboratories. In this we must depend upon them to a great extent, but with our best and most favorable laboratory reports we sometimes get bad results.

Opinions differ in regard to the use of kidney clamps. I cannot agree with Dr. Caulk that I would never leave a clamp on a pedicle. I never have done so but may find it necessary as soon as I get home. That is an incident of operation that must be decided at the time of operation. Dr. Caulk did not mention the name of his clamp but he says he has the best one. We think we have the best. It is the Gelpi clamp. It has a gutter running down the center and at the end there are two teeth. It cannot slip and nothing can get away from it. It will stay on "'til the cows come home" and I would not be without one. It has been very difficult to get them but they are worth their weight in gold.

RETRO-DISPLACEMENT OF THE UTERUS, WITH SUGGESTIONS REGARDING THEIR PROPER TREATMENT*

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There have been over one hundred operations devised for the correction of retro-displacements of the uterus, and the fact that none has been universally accepted as the operation of choice is conclusive evidence that the last word has not been said upon the subject. It has been variously estimated that from 25 to 33 1/3 per cent of all women have this type of displacement. It is stated by Sturmdorf that "16 per cent of those seeking gynecological relief have displacements." The belief that too many women with displacements are subjected to needless operations convinces one that it is a subject about which too much can not be written. In considering this subject one must necessarily consider prolapse and other complications as essential features of the subject.

Although we have so large a percentage of women with retro-displacement, nevertheless it does not mean that the majority of them need treatment. Only those should be operated upon who give symptoms and have definite pathology present. A large number of these cases are congenital in type and have associated with these displacements other topographical changes in the anatomy which make the retro-displacements more or less normal under the existing conditions.

Sturmdorf goes so far as to say that "one-half of these cases will be proven by getting their lumbar index as being congenital in type." We often find in these congenital types women who show a hyposex development. They are often of the obese type, with scanty and painful menstruation and usually sterile. Theoretically, those who show improper development at puberty might be improved by the administration of ovarian extract.

Those cases of retrocession in which we have a lack of spinal curvature, with a pelvis displaced downward and backward, spoken of by Dickinson and Truslow as the "gorilla type," have displaced viscera, and intra-abdominal pressure is exerted anteriorly to the uterus. This type of uterus usually reverts back to its usual position after childbirth. The position seems to be a normal one under the circumstances and seldom requires treatment.

A large majority of other primary displacements occur in the tall, narrow, long-waisted and broad-hipped woman, who usually has a general visceroptosis. They are frequently found in this type following repeated labors. Considering the congenital types and those displacements which occur normally after the menopause, plus a large number of simple displacements, not producing symptoms, the percentage requiring operative procedures is very much reduced.

There are, however, primary cases which are producing symptoms, and need correction. Secondary retro-displacements frequently require surgical intervention. Retro-displacements should not be looked upon as surgical entities, unless the pathology and symptoms justify operative procedures. There are several factors to be considered before operative interference of any kind should be instituted. One must consider (after deciding that treatment is needed) whether one is dealing with a primary or secondary displacement, the position of the body of the uterus, and of the cervix; and whether the above condition has complicating it a laceration or giving way of the pelvic diaphragm or outlet.

The size and consistency of the uterus, its ligaments, as well as the surrounding structures, must be studied carefully. The social condition of the patient, as well as the possibility of future pregnancies, must be borne in mind.

One must determine whether the anterior, the posterior or the entire pelvic diaphragm, including the cardinal ligaments,

*Read in Section on Surgery, Southern Medical Association, Fifteenth Annual Meeting, Hot Springs, Ark., Nov. 14-17, 1921.

as well as the sacro-uterines, are involved, and whether prolapse is present, and to what degree. Not until after one has determined the above factors should one proceed with any plan of treatment.

Complications must be carefully analyzed before determining the operative procedure to be employed. Women with recent displacements, following pregnancy, should not be subjected too quickly to operations.

I am convinced, from my own observation, that a great many retro-deviations of recent occurrence can be relieved by the judicious use of a properly fitting pessary. When the body of the uterus becomes retroflexed after an abortion, miscarriage or labor, without other pathology, and there is an intact pelvic outlet, a pessary for three or four months will often correct the position. Pessaries should also be used in displacements producing symptoms where for various reasons an operation is contraindicated.

In women past the menopause, with retro-displacements, and later complete prolapse, vaginal hysterectomy is the operation of choice, especially in the obese. In young women, with procidentia, desirous of having children, or for religious reasons, the uterus may be held up and forward satisfactorily occasionally by shortening the ligaments, plus high perineoplasty. Abdominal hysterectomy is often indicated in complicated secondary retro-displacement.

In those with spina bifida, with injury to the fourth sacral nerve, nothing short of an abdominal fixation will answer. The patient must then be rendered sterile. In elderly women with retro-displacements and large cystoceles the Watkins (Shauta-Wertheim) interposition operation gives excellent results. Patients must have passed the menopause or been rendered sterile before the performance of this type of operation is indicated. The interposition is best suited for an individual whose pelvic diaphragm other than anteriorly is in a good anatomical condition, or at least not in the extreme stage of prolapse.

The interposition operation is not nearly so well suited for the third type of prolapse. I have observed on more than one occasion the entire uterus, vagina and bladder protruding after the interposition operation. Bad sequelae to this type of operation are due to the improper selection of cases, and in some instances to the atrophy which takes place after the menopause, (when performed before the menopause).

Cystoceles, colpoceles and lacerations of the perineum and the cervix should be corrected before intraperitoneal operations. An elongated and diseased cervix must be amputated if the patient is past the menopause. In selected cases the Alexander-Arms operation may be performed, but if there are justifiable reasons for an operation at all, an intraperitoneal type is usually to be preferred. The type of operation best suited to each case must be decided upon, usually after opening the abdomen.

I shall consider only those types of operations which, in my judgment, are most popular today with the majority of gynecologists, and endeavor to show the operations best suited for different types of displacements and their complications. A great many of the one hundred or more operations have virtue. However, only a few types are selected here for the reason that they are the best and most generally used: viz., Coffee, Barrett (Mayo), Baldy-Webster-Willis, Gilliam (Crossen modification), Simpson, Alexander-Adams, and Long.

A primary retro-displaced uterus, whose body is normal in size and consistency, whose cervix points in a normal direction, toward the last sacral vertebra, and which is on a plane drawn from one spine of the ischium to the other, where the pelvic diaphragm is normal, can be corrected, I believe, by any of the methods named above. Any technic which holds the uterus forward in these simple retro-displacements, thus allowing the intra-abdominal pressure to be exerted posteriorly, will suffice.

Where the uterus is large and flabby with prolapse, or if peri-uterine pathology is present, one must select with care after deliberation the technic to pursue. To advise or use the same type of operation

for all conditions will be hazardous. I think the Long operation is good and the trauma is less than any other operation. and it is suitable for that class of cases where a normal size uterus without complications is present.

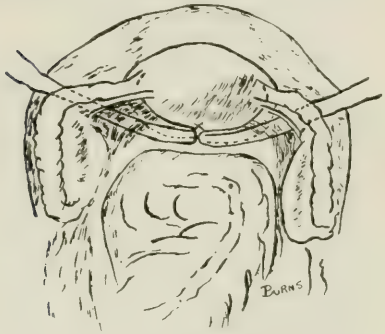


Fig. 1.—Baldy-Webster Operation

Occasionally when a surgeon is performing an operation for pathology with no relation to the uterus he may find the uterus back and decide that it is best, although not imperative, to suspend it. The

Fig. 2. Baldy-Webster operation. Ligaments brought through broad ligament too low. Attached too high centrally.

Long, on account of its slight trauma and simplicity, is efficacious in these cases. Next to the Long I would recommend the Coffee, for in these the least trauma is produced. The uterus should never be lifted up with a tenaculum or any cutting instrument, for this favors adhesions. Where it is necessary to perform a salpingectomy, a modified Coffee covering over your pedicle prevents adhesions and supports the uterus. While the Coffee attaches your ligaments anteriorly and is not as theoretically correct as a Baldy-Webster, which places the uterus in the rope of the swing instead of on top, nevertheless it produces less trauma and just as good results.

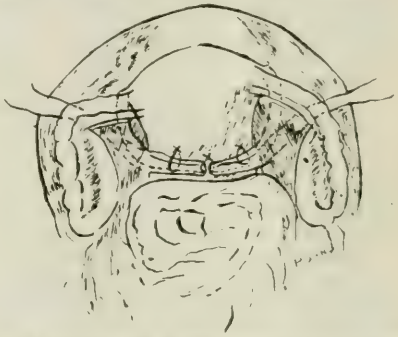


Fig. 3. Baldy-Webster ligament attached too low on body of uterus.

Fig. 4. Lateral version of the uterus (Polak).

I presented a paper before the Tennessee State Medical Association in 1915 giving my results in the previous one hundred Baldy-Webster and Barrett operations. In that paper the largest percentage of operations was the Baldy-Webster. Since then I have been performing more Barretts and Coffees. Complications up to that time were given and illustrated.

It will be observed from picture No. 6 that the Baldy-Webster operation may be improperly performed and cases improperly selected. Operations improperly performed allow a large flabby uterus to tilt backward and adhesions to take place. Picture No. 3 illustrates an error of technic. The round ligaments are run through the broad ligaments too low. Picture No. 5 shows an error in judgment, since a large, boggy uterus with prolapse was selected. In a properly performed Baldy-Webster (picture No. 1), where the uterus is not large and boggy, and without much prolapse, good results will be obtained. The round ligaments vary very much in length on each side. Therefore, their length must be noted when suturing posteriorally or the uterus may be pulled to one side, as suggested by Polak (picture No. 4). Not enough attention is paid to the twisting of ligaments, which obstructs the circulation, and edema is the result. This may go on to necrosis and adhesions follow. The lumen of the tubes may be interfered with and sterility or a tubal pregnancy result.

Fig. 5. Baldy-Webster showing low attachment, with uterus toppling over. Uterus large and flabby.

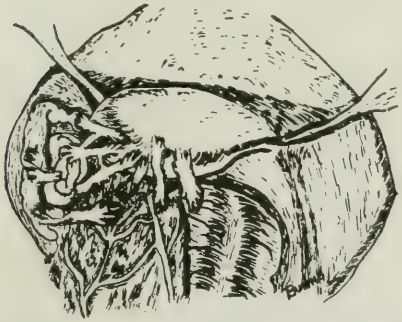


Fig. 6.—Resulting adhesions from operations in Fig. 5.

Fig. 7. Low origin of round ligaments, showing suturing of ligament to left cornua previous to shortening.

Upon a firm uterus, without much prolapse, in which the ligaments are atrophied and attenuated, the Coffee operation is better than other operations, because here the broad ligaments can be utilized as well as the round ligaments. I do not claim that the broad ligaments have any suspending capacity, but they leave the round ligaments covered, which prevents adhesions and helps to strengthen them. It is claimed that the proximal portion of the ligament is the stronger and is utilized instead of the distal weaker portion as in the Baldy-Webster, Coffee and other similar methods of procedure, but

Fig. 8.—Low origin of round ligaments. Modified Coffee operation.

the prognosis is just as good. The Baldy-Webster may serve a useful purpose in some cases of varicosities and ovarian prolapse.

When you have a large, flabby uterus, with a first or second degree prolapse with large, elongated, round ligaments, the Barrett operation should be the operation of choice. It will accomplish what the splendid suspension operation of Gilliam will do without the great danger of adhesions around the ligaments, which might produce obstruction. The Gilliam operation will bring the uterus forward and hold it, but should not, in the author's opinion, be used on account of the danger of obstruction. I have operated upon one complete and two partial obstructions following the Gilliam operation, by other surgeons. A Crossen modification is much preferred.

There is a type of uterus which one sees occasionally in which the round ligaments are attached abnormally low (pictures No. 7 and 8) in which the Coffee is undoubtedly the operation of choice. In this type the uterus is found to be large and boggy. The fundus has either become hypertrophied from its position or the malformation is congenital. A Baldy-Webster in such a case would be futile. The ligaments would be attached too low, as in picture No. 3, or too high, as in picture No. 2, and the result would be to pull the uterus down and back, if attached too high, or topple it over if attached too low. A modified Barrett, placing a suture through the round ligament and suturing it to the anterior surface near the fundus before proceeding further, could be utilized (see picture No. 7), but the condition is one especially adapted for the modified Coffee operation (see picture No. 8). Success of all operations, where the adjacent uterine portion of the ligaments is used, depends upon first the attachment of the round ligaments to their normal position on the uterus.

Where the cervix points forward and upward in retro-deviations, the sacro-uterine ligaments must receive proper consideration. Savage says, "Whenever the cervix is pulled down to the pelvic outlet, the sacro-uterine ligaments are always torn." Whether they have been torn or not they should be shortened. In cases of retrocession, which are congenital, where symptoms justify an operation, the cervix must be brought back and up, if good results are to be obtained.

SUMMARY

Congenital retro-displacements rarely require treatment.

Simple displacements, following recent pregnancies, can often be corrected by the wearing of a properly fitting pessary.

The type of operation best suited to the various conditions encountered in retro-displacements should be selected with judgment.

It is an unpardonable mistake to use the same technic for all cases.

A great many needless operations for retro-displacement are being performed.

620-3 Exchange Bldg.

DISCUSSION

Dr. Lucius E. Burch, Nashville, Tenn.—Retro-displacements are the most common of uterine displacements and are probably the most common ailment from which females suffer. The great majority do not demand an operation. Careful study and analysis of the cases are required before an operation is resorted to. When retrodisplacements are associated with a relaxation of the vaginal outlet and with a laceration of the cervix, the pathology here is not with the displacement alone, but to a greater extent with the general relaxed condition and the laceration. Retrodisplacements associated with general abdominal ptosis should be left alone and the patient's mind diverted elsewhere. Her attention should never be called to any one particular organ. Congenital retrodisplacements rarely demand an operation.

Now the question is, if 25 per cent of women have retrodisplacements what cases should be operated upon and what cases should be left alone? Clark, in a splendid paper before the Southern Surgical Association last year, brought out some important points, one of which was this: that if the symptoms are limited to the pelvis you are very likely to get a good result from operation. If a retrodisplacement in the uterus is bent and adherent in any position, it is abnormal and should be corrected. It is a different matter if it is uncomplicated. There is one way to decide, an infallible guide, and that is to reduce the displacement, put in a pessary, and then see if the symptoms are relieved. If they are relieved it is absolutely certain that the displacement is producing the symptoms. This is a guide that you can absolutely rely upon. The trouble is that in the past we have not studied the patient, nor the condition.

In regard to operation, I have no special operation to advocate. The perfect operation has not yet been brought out. There is always a chance of a recurrence with any. As the Doctor stated in his paper, an operation that may be good for one case is not good for another. There is one operation that Dr. Black failed to mention, and one that is rarely used in the South, which I consider to be an operation of great merit. That is the Olshausen operation. Graves, in the last edition of his text book on gynecology, claims that his results with the Olshausen method are better than with any other operation. I have not used it a great deal and therefore from a large personal experience can not speak. I have used it in a few cases and find that it is easily and quickly performed and I think it should be given a fair trial.

There is nothing new to be brought out about retrodisplacements, although there is a great deal to be learned, and to my mind if we will let the cases alone where the uterus is not at fault and operate upon those where the uterus is at fault, our results will be much better.

Dr. William H. Vogt, St. Louis, Mo.—I am very glad to hear this paper today and to see the attitude of conservatism regarding the treatment of retrodisplacement. I was extremely glad to hear the remarks made about the treatment of retrodisplacement with the pessary. The pessary treatment is generally pooh-poohed by the general profession or the general surgeon. The obstetrician who systematically watches his cases of obstetrics after delivery and examines his patients six to eight weeks after delivery will be surprised to find the great number of retrodisplacements that take place. Those retrodisplacements that have occurred as a result of pregnancy, that have not existed prior to pregnancy, are in the majority of instances cured by the use of the pessary.

Very few men know how to introduce a pessary and what size and shape to use. I have seen internes at the City Hospital for many years who never had seen a pessary and knew nothing about the introduction of them. They were men who came not from mediocre but from first-class schools.

The symptoms that arise from simple, uncomplicated retrodisplacements are usually those of backache, pelvic pressure, sometimes menstrual disturbance or leucorrhea as the result of perhaps some circulatory disturbance. As has been said, if you want to find out whether you should operate upon these cases the test is the pessary. If the pessary holds them up and gives relief you can be satisfied that operation will give relief. Unless there is relief from the pessary there will be none from operation.

As to just the type of operation, some one has said that there are 185 operations or more advised for the treatment of retrodisplacement. This in itself proves that there is no ideal operation as yet. Most of the symptoms of simple retrodisplacement are produced not by the fact that the uterus is displaced, but by the fact that the ovaries are prolapsed. If you can perform an operation that will elevate and keep the ovaries elevated you can relieve the symptoms; for in the great majority of these cases the backaches are due to the prolapsed ovaries.

I should like just to mention the Webster-Baldy operation, which comes in for much criticism. When performed properly this operation is of great value, because it is one of the few that really supports the ovaries.

Dr. J. Hugh Carter, Memphis, Tenn.—I had the pleasure of hearing Dr. Black read a paper on the same subject several years ago and am glad to see he is more conservative than he was at that time.

One feature I wish to talk about is the unmarried woman or the married woman without children. We find in them the retrodisplacement unconnected with any diseased condition. It is not necessary to operate upon that type of patient, but once in a while we will find that these women have a large uterus with ulceration of the cervix. It is not the kind found following the laceration of delivery, but the type with forward displacement, or retroversion. You waste time in trying to help that patient without operation. You should operate at once and in addition to replacing the uterus do a thorough curettement and possibly partial amputation of the cervix. I do not like to do a complete amputation of the cervix in a woman who has never had a child because often they do not have one afterward. In this type you get good results and I believe the inflammation or the endocervicitis is the cause of the trouble. In the acquired type I think with the exception of the type I have mentioned the trouble is always due to the other symptoms. I am inclined to think that they do not have symptoms from the displacement alone, unless there is some pathology associated with it.

Dr. A. L. Blesh, Oklahoma City, Okla.—I wish to speak only of the type of fundus displacement found in anterior malposition of the cervix. It is my experience that unless this forward position of the cervix be corrected, there is no type of operation having to do with the fundus ligamentus supports that will give permanent results. They will prove to be nothing more than suspensions in which the round ligaments will be maintaining the weight of the uterus, while working against them will not only be the weight of the uterus, but also the intra-abdominal pressure acting from above driving the uterus downward into the vagina, in the direction of which its line of axis coincides.

For this type of anterior cervical displacement with retroverted uterus, a true retroversion, not a retroflexion, I have devised a broad ligament operation based on the Dudley procedure, done from the vagina. The anterior vaginal wall with the bladder is dissected from the uterus to, but not through, the anterior cul de sac peritoneum as is done in a vaginal hysterectomy. The lower margin of the broad ligament is thus exposed and by means of suture looped in front of the cervix from either side. This lifts the cervix upward and backward into normal position by means of the strongest structures having to do with the uterus. When this operation is completed, the fundus of the uterus will often be found to have fallen forward of its own accord by the change in its center of

gravity. If this does not occur, it is then combined with one of the numerous round ligament operations.

In the so-called congenital type of retroversion, the condition described above will be found most often to be the case. It therefore might be termed a congenital condition.

I am pleased to note that others have found the pessary to be valuable as a means of prognosing operative results. Several years ago I called attention to this use of the pessary in a paper before our State Association. It has been my experience that when a properly placed pessary relieves the patient, permanent relief by a properly designed operation is secured. In our work we have no further use than this for the pessary. I have lived through the pessary age in gynecology and think it is well relegated into the past as a means of treatment. As a prognostic measure it still has a useful function.

Dr. J. A. Crisler, Memphis, Tenn.—I do not agree with all the remarks that have been made this afternoon concerning pessaries.

If you put a pessary in any woman and it is not put in tight enough to cause pressure necrosis, it turns around just the other way and does just what you do not want it to.

The patient always says the pessary helped her. I do not believe in a pessary for any purpose. It has no place anywhere.

Dr. E. T. Newell, Chattanooga, Tenn.—I arise to agree with Dr. Crisler, and I wonder if any case in which I have introduced a pessary has not had a return of the trouble. I still use a pessary to help make the diagnosis clear, and to carry patients along until they will submit to an operation. That is the entire function of this appliance. You may use a pessary to get patients into condition where you can operate, but for nothing more.

One other point is the care the surgeon should exercise in doing a curettage or operation upon the cervix. In many instances two or three months after putting on a vulsellum and yanking down the uterus to pull the cervix well down, or to do an amputation or similar operation on the cervix, you will find that you have produced a retrodisplacement. I think we should all be very careful in regard to this point in technic. Otherwise you will have produced a condition as bad or worse than the one you set out to correct.

Dr. Black (closing).—I know Dr. Graves recommends the Olshausen operation. I would not use any operation that brings up the uterus and fixes it to the abdominal wall except as cited in my paper. There is the same objection to it as to the Gilliam. I have operated upon two women who had a partial obstruction following a Gilliam and one with complete obstruction, and I never use the Olshausen method for this reason.

I usually shorten the sacro-uterine ligaments on the inside and see no advantage in shortening them through the vagina when the peritoneum has been opened. They should be shortened where the cervix points upward and forward. There is more danger of infection through the vagina. I have seen patients relieved by the use of the pessary. I recall one patient who had a miscarriage followed by a retroversion. She wore a pessary for four months and was relieved of the retrodisplacement. She again became pregnant and miscarried again. I used the pessary a second time with similar results and she again became pregnant. The uterus remained forward for a year, until the time of her death. There is no question that the pessary has a place in holding up the uterus where it is flabby and boggy after recent pregnancies, and it may remain up. I use a pessary very little and would not want Dr. Crisler or anyone to think I depended upon it entirely, but as a diagnostic and prognostic means it is exceedingly helpful in many cases. In patients when for various reasons an operation is inadvisable the pessary serves a useful purpose.

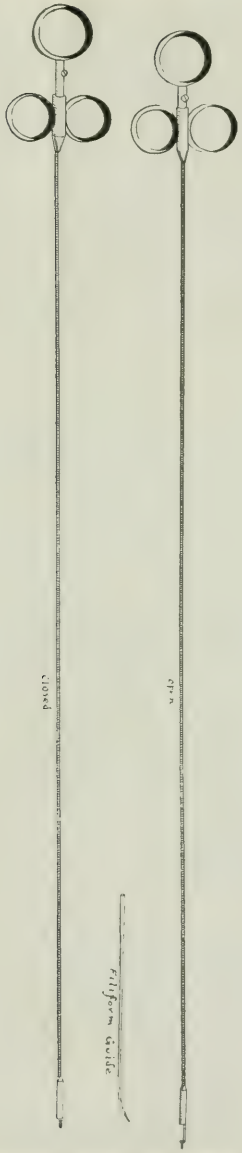
PRESENTATION OF AN INSTRUMENT FOR REMOVAL OF URETERAL CALCULI*

By George R. Livermore, M.D., F.A.C.S., Professor, Genito-Urinary Surgery, University of Tennessee; Genito-Urinary Surgeon, Memphis General and Baptist Memorial Hospitals, Memphis, Tenn.

I wish to present a little instrument which I have devised for attempting to remove ureteral calculi. I am indebted to Dr. Walther,, of New Orleans, and have followed out his idea of the flexible unit. but in the end I have made a cup shaped cavity in which the stone may be caught. Like the Walther dilator. it has a filiform guide attached. I recognize the danger of damaging the ureter, but with care this instrument can be passed, the calculus caught in its jaws and either loosened or brought down. Olive oil may be injected prior to the introduction of the instrument.

As Dr. Crowell has told us, after injection of novocain we can often pass an instrument beyond the calculus. where it may have been impossible before. Once beyond it, then under the fluoroscope, we can get it into the jaws of the instrument and make gentle traction or rotate it. Where the calculus is caught in the mucous

*Presented to the Section on Urology, Southern Medical Association, Fifteenth Annual Meeting, Hot Springs, Ark., Nov. 14-17, 1921.



Livermore Ureteral Stone Extractor.

membrane we are enabled to loosen it, and then after the injection of olive oil, it will often pass without further manipulation.

I wish to thank Mr. Wm. Tratch, of Memphis, Mr. Wallerich, of Chicago, and Mr. Bard, of New York, for their assistance in perfecting the mechanical details of this instrument.

DISCUSSION

Dr. A. J. Crowell, Charlotte, N. C.—We are all interested in removal of ureteral stone by manipulation. I shall be glad to give this instrument of Dr. Livermore's a trial. It is a unique instrument. One drawback is that we might grasp the ureteral mucous membrane and injure it. If you can get the location of the stone under the fluoroscope during your manipulation it may be quite a help.

The dilatation by putting the catheter in and retaining it for twenty-four hours, and another beside it for another twenty-four hours, and even a third one for dilating the ureter, is quite a successful way of removing these stones.

Dr. H. W. E. Walther, New Orleans, La.—I have not had the pleasure of seeing Dr. Livermore's instrument before, but I think his idea is a good one. I feel that one is apt to catch the mucous membrane sometimes with this kind of instrument, as we catch it sometimes with the Bransford Lewis. I have occasionally seen something come away that did not look like a blood clot in removing the Bransford Lewis. The cup idea is a good one and I believe it is well worth trying.

Dr. Crowell has not told us how he is going to prevent us from catching mucous membrane in the cup. I say this because at the American Medical Association meeting, he did not like my dilator at all. He said the filiform was likely to curl in the kidney and do some damage. I therefore had these little filiforms, which are on my instrument and Dr. Livermore's, made up by Eynard, of Paris. I believe that the silk tip is rational. It is softer than steel and much more flexible and will find its way better than a steel instrument. It is just about the right length to screw on to a No. 11 olive. Recently Bard has been trying to improve on my dilator with two additional olives, as recommended by Thomas, of Philadelphia. How he uses my dilator with the olives on it I do not know. You must have the tip of the filiform in view and if you screw on two or three olives, one on top of the other, you have to insert it backward and it does not work.

This dilator I described, in 1918, in the June issue of the *Journal of Urology*. I never have been unsuccessful in getting up a ureter with it. When I can not get by with a little shoving, if I introduce a finger into the rectum, I can often guide the filiform by strictures that I could not pass without that help. I think the dilator will often accomplish all that is necessary.

I showed this bladder retractor last year through the kindness of Dr. Crowell. It has been

improved since I showed it at Louisville and I want you to tell me that you think it is no good, or that it is of some benefit.

This is the only three bladed, self-retaining, bladder retractor I know of. All of the blades are removable and the form is simple and good. It is often that one has incompetent assistants or not enough and by putting this in, one is able to dissect out the prostate suprapubically as easily as Dr. Crowell can do it perineally. This gives you excellent aid in treating tumors or anything where you want a thorough exposure of the bladder. We use it in the Hotel Dieu and the general surgeons are kind enough to borrow it and tell me it is good.

In inserting it, this blade (illustrating) and this other are telescoped in this way (demonstrating). It slips into a half inch incision, then the blades are pried apart a little further and the center blade is introduced. The center blade is longer. That is one improvement over the instrument I showed last year.

I show this to you because it has been of much assistance to me in my bladder surgery.

Dr. E. G. Ballenger, Atlanta, Ga.—I have had no chance to test Dr. Livermore's ingenious device, but, if with a little care we can avoid damage to the mucosa, I think we shall find it of value. I would suggest that it be made a little larger and tapering. Dr. Walther's device can be improved upon in the same way, if it be made like a Garceau catheter. The first day that I got Dr. Walther's instrument I had occasion to use it and within twenty-four hours I had the stone out. I could not have extracted it so quickly if I had had a smaller one. A stiffer shaft could be used and in that way you might grasp it a little better.

Dr. Livermore (closing).—Chas. R. Bard, of New York, made one instrument and Mueller and Company, of Chicago, made the other. I prefer the one with the larger shaft because it does not allow so much leakage where it passes through the rubber tip on the operating cystoscope.

THE CONSERVATIVE TREATMENT OF RAILWAY INJURIES*

By W. H. Blake, M.D.,
Sheffield, Ala.

The best management of a severe railway injury is, at times, difficult to decide. This applies especially to injuries to the extremities when we are tempted to adopt the safer course and remove the injured limb, because this may give promise of an earlier recovery, or even a better chance for the life of the patient. But this decision is of the utmost importance to the patient himself, to those dependent upon him and to his employer.

These considerations confront us in all injuries. Relatively few of these patients are passengers. Most injuries occur among employees, and it is chiefly this class of patients that I have in mind in presenting a plea for the conservative treatment of railway injuries. Since these men are dependent upon their labor for a living, the loss of limb or impaired function means more than to those who do not labor. These patients are usually in the active period of life, in good health and make good surgical risks. When such a patient falls to our care we should assume the risk of preserving the usefulness of an injured limb to the greatest possible degree. This may seem trite and commonplace advice, but I have seen more of a wounded limb removed than was necessary. Probably all of my hearers have seen the same. Viewed from the standpoint of a riper experience, I would now save more wounded tissue for usefulness to my patients than I at times removed in the past.

A switchman was caught between two cars loaded with iron ore. On the outer side of the right thigh, near its middle, the tissues were severed, including more than half of both skin and more than half of the muscular tissue and the bone. The remaining tissues contained uninjured the blood and nerve supply of the lower portion of the limb. The wound was cleansed, the fragments of bone removed and the severed muscles were trimmed and stitched together very nearly in their natural position. A gauze drain was inserted and the skin sutured. A plaster cast was then applied, leaving an opening over the end of the drain. The result was a leg with almost perfect function.

An engine driving an air compressor was stopped to tighten a nut that could not be reached when the engine was in motion. While a machinists' helper was doing this work enough steam entered the cylinder to move the engine slowly and before the man knew it, his right arm was caught about one and one-half inches above the elbow between an arm of the ponderous wheel and a rigid upright. With a slow shearlike action the arm was crushed. The clearance between these pieces of iron was three-fourths of an inch and the upright, one and one-half inches thick. The ends of the broken bone were obliged to have been separated one and one-half inches for the arm of the wheel to pass. The skin and muscles on the outer and back half of the arm were severed. The blood vessels and nerves supplying the arm and hand escaped. Sensation in the hand remained and the radical

*Read before Southern States Association of Railway Surgeons, Auxiliary of the Southern Medical Association, Fifteenth Annual Meeting, Hot Springs, Ark., Nov. 14-17, 1921.

pulse could be felt. The wound was cleansed, a drain inserted, the skin sutured and a cast applied. The result was a useful arm.

It is with wounds of the hands that conservative treatment is most often called for. Numerous case histories could be given, but the invitation to read this paper conveyed the information that it must be short, so I shall detail no more.

Under strict antiseptic precautions it is wonderful how mangled tissue will often survive. Coaptate the parts loosely, facilitate drainage and encourage circulation. Save all possible living tissue and trim up later if necessary. The all-important thing is surgical cleanliness.

DISCUSSION

Dr. E. D. Martin, New Orleans, La.—What are we doing to assure asepsis in these cases? In what condition do they reach us? I ask because I remember years ago the difficulty I had with local surgeons who did not asepticize cases before they got to us. They are doing it now all the time. Of course, some infections we can do nothing with. I believe today we have reached the point where we can save limbs that at one time were sacrificed. The report made of this man's arm which had gone through so small a space, with the posterior muscles and skin torn, and yet was saved, is as impressive a lesson as we could expect.

Before the days of asepsis, 70 per cent of all compound fractures died. Today I do not know what the percentage is, but I suppose about one-twentieth of 1 per cent die. It is due to the work of Sir Joseph Lister and the improvements we have made since. If I have anything to suggest it is: when in doubt, wait. When you have a limb that is badly mangled, unless there is absolute necessity for amputation, and there is never immediate necessity if the blood vessels are pulsating, you should wait and keep your patient under close observation. It is astonishing the number of such cases which can be saved.

I remember two compound fractures that were saved in the Charity Hospital. They were both in my service and they are indebted today to no less a man than Frederick W. Parham for the use of their limbs. He had just returned and introduced in the Charity Hospital aseptic surgery. We had our own sterilizer, sterilized our own catgut and instruments. The man was doing so well next day that he allowed me to go on with the treatment and save the leg.

The next was a comminuted fracture of the elbow in which we were able to save the elbow and restore the use of that arm.

It is a reflection upon a surgeon who does not succeed in saving cases which come to him without infection.

Dr. W. E. Vest, Huntington, W. Va.—When in doubt do not amputate. Give the man another chance, and many will have restoration of the function of limb, which is much better than an artificial limb.

We are in the habit of giving our local surgeons along the line instructions about as follows: first, when you see an injury the first thing is, stop the blood. That, of course, includes application of dressing, preferably sterile dressing; or tincture of iodin on an open wound, allowing it to dry and then putting a sterile dressing on. When a tourniquet can possibly be avoided it should not be used. I have seen two lives lost because the tourniquet was tied too tight or left on too long. It should not be left on over an hour and not so long as that if it can be taken off.

Second, use enough morphin to make the patient comfortable. If four-eighths is not enough, give him more. Morphin is always a matter of comfort in these cases and in severe cases it is at times a matter of life saving. It keeps him from getting his nerves on edge and becoming excited. When the pain is eased he is all right.

Third, fix the injured part. Put a splint on it when you are going to move the patient. Be sure that he does not have motion.

Fourth, transfer him promptly to the hospital. We insist that all railway injuries of any magnitude or gravity should be treated in a hospital.

In the hospital we follow this routine: If the injury is at all contaminated with dirt we give tetanus antitoxin and repeat every eight days until the wound is healed or until there is no further danger of tetanus. That is approximately the Army routine.

Next is the x-ray. We make an x-ray of these injuries as a routine. That gives a great deal of information, especially about bony parts.

Next, we make Wassermanns of all fractures. We have had so much experience with syphilitic fractures that did not improve properly that we make it routine to do a Wassermann upon every fracture. We do see a good deal of syphilis among railway employees. Many of these men do not know they are syphilitic. Even if the Wassermann is negative we give treatment if the fracture does not heal promptly.

Dr. Edward T. Newell, Chattanooga, Tenn.—I know of no subject that requires greater knowledge of wounds than the question of whether to amputate or not to amputate. With certain cases, desperate injuries, where there is great loss of tissue and great loss of bone, we may save the limb and become optimistic. But we should not attempt the impossible. If you have loss of continuity of bone or loss of bony

structure and great loss of tissue and blood supply, you had best amputate. In an injury in and around the joints, as the Doctor had, where the circulation is very free and where we have very free anastomosis as around the elbow, you may attempt to save the limb where you would not attempt it if the injury were in another part. However, if we attempt too much we shall probably get infection and lose the patient.

We all know of cases where we have been too enthusiastic about our antiseptics. We now have Dakin solution, which we value highly, and expect it to prevent septic conditions. In my opinion, the use of the hot boric acid pack is more practical. This was extensively used during the war. By it we get a constant application of hot boric acid, and personally I feel I can save certain definite limbs and wounds which I would not attempt without it.

I had a case two or three years ago which was shot through the upper third of the humerus. The shot fractured the bone and severed the main artery, the brachial artery. His arm was about to be amputated. He had just heard something about blood vessel anastomosis. Before they were to put him to sleep he said he would like to have his blood vessels sutured. The doctor in charge called me in consultation and we sutured the brachial artery, the pulse immediately returning. We saved this man's arm.

I had another case last year: a little boy shot through the femoral artery. I did an end-to-end arteriorrhaphy, anastomosing the cut ends of the vessels. His foot was blue and cold when he was brought in. We saved his leg. Even when the circulation is cut off in the larger vessels, if it is not cut off in the smaller ones, we can operate and save the patient.

I appreciate the paper and the points brought out by the Doctor. I know it is a good one; I know we can now do more conservative work in the future than in the past. Still, there are definite cases where we ought not to take chances on a man's life to save an extremity.

Dr. J. A. Mitchell, Tullahoma, Tenn.—There is one point not brought out which helps us to decide when to amputate and when not to amputate in cases of injury: where there is a doubt about the blood supply being sufficient in the distal part. Apply an elastic bandage below the injury and release it quickly and note the color return. If the color comes back quickly the part can be saved, but if it does not come back it cannot be saved.

This was given by Dr. Louis A. Stimson in one of his lectures and I have never seen it fail.

Dr. Blake (closing).—I could have detailed many cases. I could have gone into the details of treatment, but that is hardly necessary. I had one idea in presenting my paper. That was, primarily, the saving of hands or parts of hands that we have seen removed, and that I have in the past removed, that could now be saved. Of course, you cannot have too bad a hand and save it. Of course, there are injuries of the foot where we remove them promptly. But with the hand I make an appeal for the conservative management of the early treatment.

EYE, EAR, NOSE AND THROAT

TRACHEO-BRONCHIAL DIPHTHERIA*

By Homer Dupuy, A.M., M.D.,
Chief Surgeon, Ear, Nose and Throat Service, Charity Hospital; Professor Oto-Laryngology, Loyola Post-Graduate Medical School,
New Orleans, La.

Are we diagnosing tracheo-bronchial diphtheria? Surely some of us have been in the presence of this affection without recognizing it. Its rather unusual symptom-complex has misled us when we were looking for it. This contribution, it is hoped, may aid in clearing up one of the obscure problems in medicine.

The literature and text books, with the exception of Lynah's notable contribution,[1] are arid on this subject. Nothnagel, in his "System of Medicine,"[2] has a brief paragraph on "Diphtheria Limited to the Tracheo-Bronchial Region." Purcell and Acree report one case of membranous (diphtheritic) obstruction of bronchi cured by antitoxin and bronchoscopy.

Lynah's record of thirty-eight cases suggests that this affection can not be of such extremely rare occurrence.

TYPE

Lynah, through bronchoscopic examinations, in a series of thirty-eight cases, justifies the conclusion that we have ascending diphtheria. The membrane forms first in the smaller bronchi and extends upward in the trachea. In another group we have the membranous formation localized first in the trachea and then spreading downward. In either group the larynx and oropharynx are not involved. The type is truly tracheo-bronchial. It may be called the low membranous form.

Such an anatomical distribution of the membrane gives rise to a symptom-complex totally different from the more common forms of diphtheria. These types, such as faucial and nasal diphtheria, are visually before us. Even in the primary laryngeal form the marked loss of voice gives the cue.

The tracheo-bronchial type, according to Lynah's record, occurs more frequently in children. May not this form of respiratory affection follow in the wake of measles and we mistake it for a broncho-pneumonia? I only ask the question.

Why the membrane should remain limited to these particular anatomical areas can no more be answered than we can explain a primary nasal diphtheria, or a primary laryngeal involvement.

SYMPTOMS

The onset of the disease is rather insidious. It is the common enough picture of an ordinary "cold." There is occasional croupy coughing and intermittent stridor. The temperature does not run high. Then appears the dyspnea which becomes persistent and progressive. The respiration assumes an asthmatic character. Gradually the dyspnea reaches great intensity. The lips and finger-tips become cyanosed. The suprasternal and diaphragmatic retraction becomes a marked feature in the distressful breathing.

There is no aphonia. On the contrary, the voice is practically normal.

All forms of diphtheria are of slow evolution. This type is no exception, and therefore the patient remains very sick for several days.

DIAGNOSIS

As the membrane is at first confined to the trachea and one bronchus, all the physical signs indicate a one-sided bronchial obstruction. The impeded air-current in this bronchus results in diminished respiratory sounds on that side of the chest. On the other side, with an unobstructed bronchus, the lung becomes hyperactive with increased respiratory sounds. There is an emphysematous con-

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dition of the lung on the obstructed side with hyperresonance. There is a distinct tendency to the "barrel chest," especially in children.

The "flip-flop" sound of loosened membrane vibrating in the trachea may be heard by auscultation. If a foreign body be excluded this sound means only one thing, a tag of membrane in the lower air tract. The cultures obtained from the oropharynx are of no value, as they are usually negative. Through the bronchoscope and tracheal wound our cultures should give positive information.

We can usually exclude a foreign body by the negative history. If this be unreliable the presence of a foreign body will give us sudden dyspnea. The coughing will be violent and exhausting, and there will be distinct periods of remission from all symptoms.

Thymus enlargement gives a previous history of recurring attacks. Its subacuteness is distinctive. A radiograph might outline the hypertrophied gland.

In children particularly, the most difficult problem is the differentiation from broncho-pneumonia. The clinical picture of tracheo-bronchial diphtheria is, at the beginning, that of a catarrhal capillary bronchitis. Broncho-pneumonia is usually bilateral. The primary invasion of the lower air tract by diphtheria is a one-sided affection in so far as the physical signs are concerned.

TREATMENT

The type of disease we are now considering is one so inaccessible by its localization that early diagnosis is surrounded by many, but not insuperable, difficulties. In acute lower air tract affections in which increasing dyspnea is the outstanding feature, and when the clinical picture does not unmistakably conform to the usual behavior of broncho-pneumonia and kindred troubles, we should look to the possibility of a tracheo-bronchial diphtheria. Here, just as in other forms, we are justified in instituting serum therapy on mere suspicion.

We must emphasize that intubation, unless specially devised long tubes are used, is contraindicated.

As the membrane reaches high up in the trachea the tube is apt to crumple the membrane and push it lower down, inviting an immediate and fatal asphyxia.

Tracheotomy unquestionably gives us an opening through which we can rapidly remove membranous casts. We can also utilize the opening for a scope through which we can instrumentally remove loosened membrane along the bronchial tree. Upper bronchoscopy offers the same advantages, although if the dyspnea be extreme this procedure will be fraught with many difficulties.

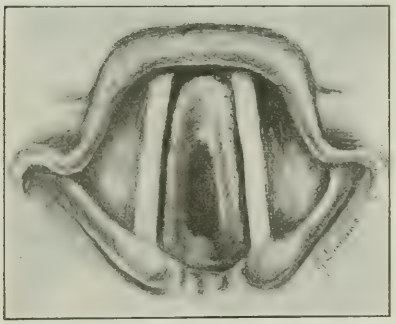
As the disease may have existed for many days before we suspect its true nature, better results will be obtained if we give the serum intravenously. It should be given in large doses, twenty thousand units as an initial dose, and this followed in about six hours by another such dose, continuing its use as indicated.

Case 1.—Winnie V., white, female, aged 5, about December 1, 1920, presented the usual picture of a "bad cold." This gradually led to persistent and increasing dyspnea. December 5, the child appeared to be very sick, when I saw it for the first time. There was every indication that life would soon be extinct unless mechanical help to improve the breathing were resorted to. One thing impressed me especially: the voice was perfectly normal. I advised intubation only as a trial, and prepared for tracheotomy. Intubation made matters infinitely worse: the breathing ceased. A hasty tracheotomy was performed.

Even this failed to restore the breathing. It was not until a long cast of the trachea and larger bronchi was extracted through the tracheal wound that the proper aeration was obtained. Sixty thousand units of antitoxin were given within twenty-four hours. No further respiratory obstruction occurred, and no sequel prevented the removal of the tracheal canula on the fifteenth day after tracheotomy. The diagnosis of tracheo-bronchial diphtheria was confirmed by the microscope. The oropharynx and larynx were normal.

Case 2.—Sister Vincent, age 22, Orphanage of the Sacred Heart, was first seen by a Dr. Chas. A. Borey, who furnished me with some of the following data. Began coughing March 28, 1921. Dr. Borey saw her on April 1, when she presented some dyspnea on exertion. The lung picture suggested a broncho-pneumonia. On April 3, 1921, there was marked dyspnea in both the sitting and prone positions. The dyspnea was on the increase and the breathing was markedly asthmatic in character. The temperature never rose higher than 100 degrees. The voice was notably clear. I saw her in consultation April 6, 1921. The breathing was notably embarrassed with suprasternal and diaphragm-

atic retraction. There was cyanosis. She was removed to Hotel Dieu, April 6 at 8 p. m. Bronchoscoping the larynx revealed fibrinous exudations in the trachea. They reached up to a line corresponding to the cricoid cartilage. It was, therefore, a subglotic implantation of membrane. The oropharynx and the larynx were absolutely normal. There was no dysphonia. On opening the trachea the most profuse bleeding came from within the lumen of the trachea. The suction apparatus was put into use and proved most efficient in removing blood from the parts and preventing death from asphyxia despite the tracheotomy. Bronchoscoping the trachea, it was seen that a grayish-white exudate lined the tracheal walls and extended below into the bronchi. We removed whole casts of this membrane. Examination of this tissue by Dr. Maurice Couret, of the Pathological Department, Hotel Dieu, gave a pure culture of diphtheritic bacilli. The tracheal canula gave the patient an ample amount of air. But the pulse was rapid and weak. Forty thousand units of antitoxin were given intramuscularly. The heart action grew weaker despite all stimulation and death occurred the next morning from toxemia.



Laryngoscopic image of case 2 showing membrane in trachea. Curled epiglottis prevents view of ant. commissure.

REMARKS

The manner in which the serum was administered deserves unfavorable criticism. I should have given it intravenously and might have thus more effectively controlled the toxemia. The late diagnosis was unavoidable for reasons already advanced. But for the use of the laryngoscope we should not perhaps have made a correct diagnosis in Case 2.

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DISCUSSION

Dr. W. L. Simpson, Memphis, Tenn.—There is very little doubt that cases of diphtheria of the tracheo-bronchial tree are not diagnosed, even though Lynch's contribution stimulated us to observe suspicious cases.

It is questionable whether there is such a condition as ascending diphtheria. The lungs and bronchi are protected in many ways from infection going direct to the lungs. The moist, tortuous passages of the nose, pharynx and larynx are some of the mechanical difficulties which prevent infection from going direct to the bronchi and lungs. At the end of inspiration the air normally is almost free of dust and bacteria and as the air emerges from the lungs in expiration it is practically free of all bacteria and dust. The cilia of the nose and trachea are also real obstructions to bacteria's going into the lungs and bronchi, and the phagocytes and body fluids in the mouth and respiratory tract above the bronchi also hinder the progress of bacteria to the bronchi.

The transmission of diphtheria is by contact or droplet infection as in coughing, etc. The ordinary case of tracheo-bronchial diphtheria would usually start in the nose, mouth, pharynx or larynx and then extend to the trachea and bronchi and lung tissues if it did not remain localized.

The fact that there is little or no membrane in the larynx does not mean that the larynx has been entirely free of the disease at all times during the course of the infection. There was possibly a milder type of infection in the larynx and a more severe in the bronchi and trachea, or possibly an earlier infection which may have been well when the disease was noted in the lungs. Certainly in quite a high percentage of diphtheria cases where there is tracheo-bronchial disease there is also an extensive membrane on the tonsils and larynx with a history of hoarseness.

As to diagnosis, there are conflicting signs which make it almost impossible to diagnose some of these cases. In the bronchi and trachea the membrane is found attached only at the points where the epithelial cells are necrotic and the basement membrane is destroyed, leaving arcades of normal epithelium under the faise membrane, while in the larynx and pharynx the membrane is firmly attached continuously. This accounts for the "flip-flop" sound of loosened membrane. This sign is especially noted if a tracheotomy is done. Pieces of the loosened membrane can often be removed through the tracheotomy wound by means of the bronchoscope or otherwise.

It is practically impossible to differentiate the ordinary broncho-pneumonia from tracheo-bronchial diphtheria in some cases. In fact, the diphtheria bacillus may cause a broncho-pneumonia. But the usual course is for the streptococcus to be ingrafted on diphtheria and be the etiological factor in broncho-pneumonia.

In treating these cases successfully an early diagnosis is necessary and large intravenous doses of antitoxin are indicated. Undoubtedly some cases can be saved by tracheotomy and removal of the membrane by that route, or by

upper bronchoscopy, which is not without its dangers.

Dr. Carl A. Weiss, Baton Rouge, La.—Dr. Dupuy has made it very clear to us that in the diagnosis of this form of diphtheria we find progressive dyspnea and a clear voice. We were all taught that in ordinary laryngeal diphtheria progressive dyspnea calls for intubation. This picture is changed now. The clear voice calls our attention to trouble lower down and intubation in these cases will not benefit the patient. Another thing is the length of time the patient has been ill and the length of time this dyspnea has been increasing. It has been my experience that in diphtheria of the larynx you get dyspnea much more quickly than in these tracheo-bronchial cases. In a case recently brought to me the dyspnea had lasted for about five days, and when I saw the child she had small isolated infected spots on the tonsil, as though the infection were just starting, though the patient had been dyspneic five days.

These two points, the progressive dyspnea and the clear voice, ought to impress upon us the seriousness of the condition with which we are dealing.

Dr. H. W. Lyman, St. Louis, Mo.—This very clear picture of an obscure condition has been appreciated by all of us. The unfortunate fact that these cases are not discovered earlier is the reason that we do not get better results from the use of antitoxin.

I thoroughly endorse what has been said about using the drug intravenously instead of intramuscularly because of the more prompt and energetic action.

There is another danger in these cases when the antitoxin does bring about the desired result: that is, danger of suffocation when the huge slough in the trachea loosens and is coughed up. The patient should be watched very carefully because it is often necessary to remove large pieces of membrane from the tracheotomy tube.

Dr. Dupuy (closing).—In reply to Dr. Simpson I would like to say that on the statement of Dr. William Seemann, of New Orleans, I can say that the lung is frequently the seat of diphtheroid bacilli, so it would not be so impossible to have infection in the terminal bronchi, from the very fact that these diphtheroid bacilli live there. I know you might question the pathogenicity of the diphtheroid bacillus, but that is a refinement of the question.

Again let me say that I cannot conceive of the larynx's being the seat of a diphtheritic infection without dysphonia. As soon as the larynx becomes the seat of any inflammatory process it expresses that very thing by dysphonia. Therefore a patient could hardly have had laryngeal diphtheria, even a sub-acute type, without giving a history of very prolonged dysphonia. I say this of course so as to support my thesis that we can have and do have a limitation of diphtheritic infections to the tracheal and bronchial regions. I am not prepared to say, as Lynah does, that there are cases in which the extension is from below up, but I reassert that "tracheo-bronchial diphtheria" is a definite entity.

Dr. Lyman agrees with me in recommending intravenous injection of antitoxin. Remember, in this type of diphtheria we have, for reasons already explained, made a late diagnosis, and we find on the sixth or seventh day a very sick patient with membrane extending possibly from the trachea on a line with the cricoid cartilage down to the terminal bronchi, giving a larger area for absorption. Our experience in the Charity Hospital has been that in severe toxemia we get better results in giving the antitoxin by the vein.

EXTERNAL DEFORMITIES OF THE NOSE AND THEIR CORRECTION BY THE INTRA-NASAL ROUTE*

By Sidney Israel, M.D.,
Houston, Texas.

We are gratified to say that at last corrective rhinoplasty has apparently attained its rightful recognition in the field of surgery. We should feel as justified in applying skillful surgical efforts to an externally deformed or mis-shapen nose, as to a deformity of the teeth, muscular defect of the eye, or a deformity of a limb.

No feature of the face is more noticeable than the nose. What artist in his masterpiece has ever striven to give to a face anything but the perfectly shaped nose? It is the feature we unconsciously observe first, when viewing a new face. One can well understand the mental attitude many patients develop as result of a deformity of this organ.

In the application of our surgical art in the correction of external defects of the nose, several requisites or cardinal points are to be observed:

(1) That there be no external or visible scar, if it is possible to avoid one.

(2) That whatever surgical step is taken must be corrective and accurate, and adapted to the individual face.

(3) That we have a clear understanding of the deformity and the necessary measures for correction, together with the anatomic and artistic ideal to be approached.

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(4) That our technic be as mechanically and aseptically above criticism as possible.

Fig. 1—Saddle deformity, traumatic.
Before operation. After operation.

External deformities of the nose manifest themselves in many varieties, namely: hump (dorsal); lateral bend; drooping tip with or without dorsal hump, which gives rise to the so-called hook nose; saddle nose; pug nose, wide nostrils, with flat tip (African type nose); atresia of one or both nostrils; and lastly, a combination of one or more of these deformities.

Fig. 2—Lateral deviation of the nose following old injury.
Before operation. After operation.

Anatomically these deformities may involve the bone, cartilage, or both.

Etiologically, they may be due to disease, injury, or faulty development.

In many instances we find an associated deviation of the nasal septum present, that requires correction. It is the writer's view that a most conservative type of septal resection should be performed, but that it should be done there is no doubt, if one would avoid failure and mishap in the correction of the external deformity.

Fig. 3—Hump nose with elongated or dropping tip.
Before operation. After operation.

Especially does this apply to the correction of external lateral deformities, involving the bony framework of the nose as well as the cartilaginous.

As a result of investigation carried out to determine the most satisfactory transplant for the correction of saddle-nose deformities, I am of the opinion that cartilage offers the best results, and is far superior to bone, or any foreign substance such as celluloid. That bone will eventu-

ally be absorbed and is often likely to break down is well known. The writer cannot subscribe to the idea of disturbing an otherwise normally functioning nose by sacrificing one of the turbinates to overcome an external depression of the bridge. As to celluloid or any foreign substance of the like, while successful results are reported, it is distinctly a foreign body, and the percentage of suppurations and expulsions, with often added disfigurement as a result, is bound to be large.

Cartilage, on the other hand, serves the purpose ideally. It is easily handled, for one is able to trim and shape it with little difficulty. It becomes readily and firmly

Fig. 4 Wide nostrils, flat tip. Lateral view. Before operation. After operation.

attached in its new domicile, and in the presence of infection, weathers the storm with little or no damage. The final result, as a rule, is all that is to be desired.

As to the anesthesia indicated, we are influenced entirely by the character and extent of the operative necessities, the age and temperament of the patient.

The incision is within one or both nostrils, according to the requirements, the so-called intra-nasal approach, in order to avoid an external scar. We cannot see why these cases should be required to wear spectacles, with no defect of vision, and with plain lenses, merely to hide an external scar over the bridge of the nose that could have been avoided.

Lastly, I would mention the importance of post-operative care, for in no class of work is this more exacting. The reaction locally is negligible and promptly subsides. Strange as it may seem, these patients suffer practically no pain, and little or no discomfort, although it is required that they wear the proper splint, suited to the individual case, for a short period.

That the rhinologist should be the one best suited for this special field of surgery, owing to his knowledge of the part is apparent, provided he possesses the mechanical skill and appreciation of the proper anatomic ideal to be approached. These cases are individually a distinct mechanical and artistic problem within themselves.

Fig. 5 Wide nostrils, flat tip. Front view. Same as Fig. 4. Before operation. After operation.

Carter Building.

DISCUSSION

Dr. T. E. Carmody, Denver, Col.—I should like to emphasize in this operation the lack of scar. We formerly did this making the scar, to be covered by glasses, and in some cases it was necessary to wear glasses with plain lenses when the patient did not require them. In case the patient

already wore glasses it was not very bad. The thing that gave us some difficulty was drainage, because in these cases we did not get it. There was the opening at the upper end, and if a blood clot formed and broke down, it necessitated an opening lower down in the nose.

I noticed in Dr. Israel's pictures and in his paper that he mentioned using bone and cartilage. My choice has been to operate with bone and cartilage together, and the best results have been obtained in this way. There is a possibility of having absorption of both cartilage and bone, but in the cases we have treated we have not had that difficulty.

It is much easier to remove the whole rib and shave it off than to remove part of the rib. I find that it takes me about double the time to remove half the rib. There is danger, however, of opening the pleural cavity and getting an infection, but this has never been my misfortune.

The size of the transplant must be carefully measured, because if it is too large there will be a hump. We have in some cases used the cartilage from the ear and it builds up the alae very nicely.

Dr. W. L. Simpson, Memphis, Tenn.—The correction of small head deformities is all rather simple, but I should like to ask Dr. Israel especially how he raised the end of the nose; also how he is going to shorten the nose. Give us the technic if it does not take up too much time. Also he should mention something about his new needles, in the interest of science.

Dr. Israel (closing).—If we have to create a scar to relieve an external deformity of the nose, there is something wrong with our technic or method of approach.

The question of drainage is important, and for that reason we do not suture our incisions, which are made intranasally, for we get better drainage by handling the case this way. We put a very light strip of gauze in each nostril, to catch any drainage that takes place and, incidentally, to hold the flaps of the incision in contact.

As to cartilage or bone, we have made very careful investigation in this connection and have concluded that cartilage serves the purpose better. Bone will eventually be absorbed. When these pictures were made, I had been using bone and cartilage, and, therefore, in the paper, it was mentioned. It has been our experience that in removing portions for bone graft from the rib, patients suffer, in the region of the bone removal, quite a little pain for two or three weeks, in spite of a supportive splint. On the other hand, after the removal of rib cartilage, they suffer no pain or post-operative discomfort. I think Dr. Carmody will find better results with the use of cartilage.

I can see no justification in sacrificing one of the turbinate bones of the nose to correct an external deformity, such as saddle nose. It is absolutely unnecessary.

To raise the tip of the nose, it is necessary to take a V-shaped strip, composed of cartilage and muco-perichondrium, from the anterior or lower part of the septum, with the base toward the dorsum of the nose and extending up to it. The upper and lower edges of the incision, after the strip is removed, are joined together, producing the desired elevation. The piece removed should be carefully graduated, to avoid severe over- or under-correction.

Illustrations and explanations of the suture set that I have just devised were published in the *Laryngoscope* for August, 1921.

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EDITORIAL DEPARTMENT

SOUTHERN MEDICAL ASSOCIATION
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RACE SUICIDE, ANCIENT AND MODERN

In 1909, the Obstetrical Society of France made the declaration that according to the most recent statistics of maternity hospitals in the great cities of that country, one-third of the children conceived were destroyed by abortion.

GREEK AND ROMAN IDEA OF MARRIAGE

As Dr. Sedley L. Ware, of the University of the South, Sewanee, Tenn., says, with the ancients, woman was either an instrument of lust, or at best, a relaxation from business and domestic cares. The best educated women of the Greeks and Romans were generally courtesans. The part a decent woman had to play in the world was propagator of the species and guardian of the nursery. As long as the old belief in the Lares and Penates, who guarded the hearth, lasted, it was imperative for every Greek and every Roman to have heirs who could sacrifice to the family gods. To die childless was to extinguish the family worship as well as the family name. No greater calamity could befall a man than lack of heirs. With the corruption and fall of the Greek Republics, with the incorporation within the Roman State of a vast empire of many races and many religions, both Greeks and Romans ceased to believe in, and honor, the family.

The influence upon family life was simply withering. At best, marriage among the Pagan ancients was somewhat animal-like in its conception. Betrothal of the bride took place at so early an age that there could be no question of marital love in our sense of the term but only of a mating based upon expediency. Love marriages were few, and took place only with widows or with divorced women. When the Greeks and Romans became corrupted skeptics, the mating, robbed of its solemnity and sacred character, was merely repulsive. The philosopher, Seneca, who died in the year 65 of our era, gives this advice to the wise man:

"Love thy wife with thy head, not with thy heart, for nothing is more hateful than to love one's wife as one loves one's mistress."

Rome's decline is to be traced to this decline in family life. Women would no longer submit to the burdens and responsibility of child-bearing. All the arts of birth-prevention, including abortion, were freely practiced, not principally among fashionable women, as we see them today, but among the lowest classes of Romans. They, too, no longer had any real family life. The emperors, to make their despotism acceptable, fed the masses upon bread and amused them with shows. The sexual instincts, which the poor today gratify with their lawful wives, the poor at that time could gratify with a vast swarming class of prostitutes who, as one historian puts it, "were direfully inexpensive." Thus the old Romans literally committed race suicide. It was not that the sturdy and prolific German barbarians invaded and conquered Rome, but

that Rome kept up her population by importing the barbarians in greater and greater numbers, until the Germans took possession of their master's house.

POPULATION IN THE MIDDLE AGES

There could be no question of race suicide or birth-control on a vast scale in the Middle Ages. As the ascetic and celibate life was the most perfect form of Christian life, hundreds of thousands of both sexes adopted the monastic life, and the secular clergy (men who were forbidden to marry) comprised many thousands more. But above all, the terrible famines, made so devastating by lack of transportation, as in Russia today; the awful feudal and private wars; the serfdom and the economic misery of the masses, kept population well-nigh stationary in all countries.

ENGLISH POPULATION

With the rise of the great industrial and mechanical revolution in England in the latter half of the Eighteenth Century, the pressure of population upon subsistence (England doubled her population in fifty years) became the question of the day. The Reverend Robert Malthus, a clergyman of the Church of England, wrote, in 1798, the first edition of his famous book, "An Essay on the Principle of Population as It Affects the Future Improvement of Society." Malthus said that wars, famines, misery and vice did at any rate some good, in that they checked the excessive growth of population. Population grew in geometrical ratio, while the food supply increased in arithmetical ratio. There was no question of birth-control in this edition of his book. In a later edition, after many misgivings for fear of being misunderstood, Malthus said that if the working classes did not practice some form of "moral restraint" they could never hope to better their condition, their wages and their standards of life.

Economists seized upon this, enlarged and distorted it, and spoke of a fixed law of wages which could never be increased, — Carlyle's "Dismal Science." Then finally came a school of sociologists and economists with John Stuart Mill, Annie Besant, and others at its head, who have founded what is called "Neo-Malthusianism."

In England in very recent years (and doubtless today) literature and "rubber goods" for birth-control were found everywhere openly displayed in shop windows. Neo-Malthusianism has made tremendous strides, in France in particular, in comparatively recent years. Birth-control is more or less under the protection of the state in Holland and in Japan. In the United States to disseminate information upon the subject is punishable by imprisonment. Abortion is not included under the term birth-control, as it is commonly used.

POPULATION IN FRANCE

Mr. Herbert Adams Gibbons in his recent book, "France and Ourselves," makes the following statement:

"Mr. Paul Bureau, of the Catholic University of Paris, declares that unless there is a sudden and sweeping change in the demographic charts, the French nation is doomed to destruction. The famous Dr. Bertillon, who has worked for twenty years to arouse the French to the breakers ahead, insists that the crisis is of recent origin. From 1856-1866, France averaged one million births a year. In proportion to other countries she ought to have had 1,400,000. From 1867-1888, the annual increase fluctuated between one million and 900,000. The fall in the succeeding decades of the Third Republic was rapid,—800,000, 700,000, 600,000.

"We are falling behind now about 500,000 births per year in proportion to other countries," says Dr. Bertillon. "Our death-rate is increasing: each year 300,000 above fifty years are dying. If the birth-rate continues to fall in the same degree, in eighty years there will be no France. Reducing the infant mortality is a drop in the bucket. In 1913, only 83,000 babies died. The best of care and skill could hardly have saved a quarter of these. The only remedy for France is to have as many births as other nations."

Hersch, Professor of Statistics in the University of Geneva, thinks Dr. Bertillon guilty of exaggeration. He points out that if the French could only lower their death-rate to that of the Germans, France would have 82,270 more inhabitants every year. Better still, if France could lower her death-rate to that of England, she would add 176,000 people yearly to her numbers, and in eight or ten years get back the million and a half men she lost in the war.

Professor Hersch says that the lowering of the percentage of births is an absolutely universal phenomenon: that France need not fear an enormous German natality. He takes the German kingdom of Saxony and shows that in 1896 that country had 40 births per 1000 inhabitants. In 1913, the Saxon birth-rate had fallen to 24.8 per thousand. It took France a century to attain such a fall. That Neo-Malthusianism has apparently spread to the United States is shown by the fact that the birth-rate in New England today is actually lower than that in France.

France is said to be a country of bachelors. Just before the World War, M. Klotz, a French cabinet minister, estimated the number of bachelors over thirty years of age in France at 1,350,000. It is this French old bachelor class who are perpetually chasing young women in the streets, and have made French towns unsafe for decent girls.

"It is a rule of nature," says Montesquieu, "that the fewer the marriages in a country, the more corrupt married life is apt to be. The fewer married people there are, the less faithful married people are to each other, for the more thieves there are the more thefts are apt to be committed."

Abortion has been condemned so far and wide that little remains to be said against it. The chief argument is that the prevention of abortion is a part of preventive medicine. A large number of abortions result in serious illness to the women. It is said that in this country the well to do woman can purchase what information she wishes regarding contraceptive measures, and that this information is inaccessible only to the poor. Certainly contraceptive "instruments" may be purchased fairly readily, and are frequently taken from house to house by agents.

The question of death-rate is one upon which the doctors may take their stand. Infant mortality is something which they can control, under favorable circumstances, as they can nothing else with which they deal. Infant mortality is dependent to a very great extent upon prenatal care of the mother, education of the mother, and preventive work with the child from the time it is born. To say that 83,000 babies die in any country in a year and that the best of care and skill could hardly have saved a quarter of these, and to pass this over as unimportant, shows a cynicism not warranted by public health work and preventive medicine of today.

THE MENACE OF THE "CHIRO-QUACK-TORS"

Leslie's Weekly deserves the gratitude of the public as well as of the medical profession for its exposition of the "chiroquacktic" fraud. It had the courage to publish, in a series of four articles by Severance Johnson, some facts regarding "chiroquacktic" methods that should be known to the hundreds of thousands of sufferers who have been duped by this widespread form of charlatanism.

Mr. Johnson shows that chiropraxis was born of quackery, its first exponent having been a "mesmeric healer," one D. D. Palmer, of Davenport, Iowa. This man's son, B. J. Palmer, has made Davenport infamous by establishing there the greatest school of humbuggery that ex-

ists in the world. This dollar-making industry, known as the Palmer School of Chiropractics, and its branches in various parts of the United States, according to their own figures, have graduated 10,000 persons, who claim to find 1,000,000 gullible individuals from whom they remove between $50,000,000 and $60,000,000 annually. As one would expect, this B. J. Palmer has become a multimillionaire and the income from his school is said to be more than a million dollars a year.

The most important part of the Palmer School is its printing establishment, which sends out millions of cleverly worded pamphets, such as "Chiropractics Gets You Well," to those engaged in finding "suckers" whom they may hook. These leaflets, which treat of everything from deafness to asthma, explain that the only cure is by "adjusting" the spinal column, all of which goes to show that those who claim to be chiropractors are either ignorant or criminal. The chiropractor who is so lacking in knowledge of anatomy as not to know that these so-called "adjustments" are physical impossibilities without breaking the vertebrae is an ignoramus who ought not to be allowed to treat the sick. On the other hand, if he be intelligent enough to know that it is impossible to do what he claims, he is obtaining money under false pretenses and is a criminal that should be in jail.

Mr. Johnson rightly sums up the "chiroquacktic" business as having been built up by advertising. It is the same game as the nefarious patent medicine industry which has proven over and over again that medicines need not possess merit to be sold if they be advertised without reference to the truth.

That the chiropractors have become a menace to the public is manifested by the fact that their schools are turning out more men to prey upon the gullibility of the sick than reputable medical colleges are graduating well trained physicians. The hold upon the popular imagination that the chiropractors have is evidenced by the fact that they have been able to persuade the legislatures of twenty-two states to legalize their particular form of knavery. It is well enough for the medical profession to know that in twenty-two states chiropractors have the same legal status as physicians. Among those states, according to Palmer, are the Southern states of Arkansas, Maryland, North Carolina, Georgia, Oklahoma and Florida. They, the chiropractors, are organizing propaganda to induce the remaining states to create chiropractic licensing boards.

Public health officials know that chiropractors are a menace to the health of any community in which they practice because, not being capable of recognizing and differentiating diphtheria, typhoid fever, syphilis, tuberculosis and other communicable diseases, they do not report them. But they treat those conditions by "adjustments" without knowing the true nature of the illness of their victims. Chiropractors propose to cure diabetes without dieting their patients; they treat appendicitis and cancer without surgery; and they allow patients with cancer and tuberculosis to lose their chances for recovery, while submitting to spinal manipulation in the early and more curable stages of the diseases.

The chiropractors are organized. They have an enormous fund with which to hire lobbyists and to buy legislators to carry on their propaganda. They are endeavoring in every way possible to discredit the medical profession and they have partially succeeded in some states. It is high time the physicians take up the battle against these enemies of science and of mankind. If the organized medical profession, whose members know of

the harmful results of chiropraxis, does not inform the public of the real facts about these charlatans, who will do so? Lawyers do not allow illegal practitioners of law to impose upon the public, and physicians should do their duty in destroying the menace of the chiropractors.

It is to be stressed that the chiropractors are more of a menace to the public than to the medical profession, because they do not cure those who have real disease. Later those same patients have to consult physicians after the quacks have failed and from a financial standpoint it is fortunate that the neurotics who are duped by the chiropractors are usually those who do not pay their doctors' bills.

The physicians' fight against the chiropractors should be conducted on the same high altruistic plane as have been the campaigns against typhoid fever, tuberculosis and other diseases that when uncontrolled become a menace to mankind.

It is greatly to be regretted that the United States Government should give its tacit approval of such charlatanism by permitting vocational students to take up the study of chiropraxis. One wonders that the three great medical branches of the Government—the U. S. Public Health Service, the Medical Department of the Army, and that of the Navy—do not bring sufficient force to rectify this mistake.

THE POST-MATURE BABY

The post-mature child, like the ureteral stricture, is something comparatively new in medicine. This does not mean that babies have only lately come too fully developed into the world, or that men and women have only recently suffered with stricture of the ureter.

Until quite recently, the majority of medical practitioners stated that there was no such thing as a post-mature child, that if a child appeared to come after time it was always due to a mistake in computation of its date. That no fetus stayed *in utero* too long, was one of the "axioms of medicine." But medicine advances by the destruction of its axioms.

Now that the majority of obstetricians have learned to determine approximately the length, the head size, and even roughly to deduce the weight of the fetus, ideas of the fetus as maturing always at a definite time and of the uterus as beginning its contractions invariably at the moment of the fetus' maturity, have veered. This issue of the JOURNAL contains two papers read at the Hot Springs meeting before the Obstetrical Section of the Association by its distinguished guest, Dr. C. B. Reed[1], of Chicago, and by one of its well-known members, Dr. W. H. Vogt[2], of St. Louis. This timely point is emphasized, and the McDonald, the Perret and the Ahlfeld methods of measuring the fetus are described and their value estimated. These measurements, compared with our knowledge of the average measurements of normal newly-born babies, and our knowledge of the measurements of the birth canal, are making of obstetrics nearly a mathematical science. They put it almost as far beyond the reach of the midwife as surgery is today beyond the reach of the barber, the original surgeon.

That post-maturity is becoming a recognized factor in Southern as well as in Northern and Western obstetrics is evidenced by its discussion in county and state medical meetings.

It is not intended to suggest that one go to extremes in the matter of artificial induction of labor more than in any other medical problem, nor to imply that even a large minority of the babies born alive

1. Reed: "The Post-Mature Child," page 286.
2. Vogt: "The Interruption of Pregnancy at Term with a Consideration of the Methods of Estimating the Maturity of the Fetus in Utero," page 290.

or dead are post-mature. It is a platitude which needs often to be recalled that Nature, while not infallible, more often judges correctly than the physician. More mistakes have been made by attempting to correct or improve her than by letting her take her course. The burden of proof rests upon the man who declares her at fault, and the mistake of snatching premature babies must be studiously avoided. This plea is for prenatal care, for accurate measurements by the recognized methods both of the fetus and the birth canal, and for such conservative treatment of pregnant women as may be necessary for the life and well-being of the mother and child.

Correspondence

NOTICE, ARKANSAS TRAVELERS

Editor, SOUTHERN MEDICAL JOURNAL:

The motif of our approaching annual session is to be "the home-coming meeting." It is to be held in Little Rock, May 17-19, and we are very desirous that our old-time Arkansas doctors, now practicing in other states, be informed that we shall expect them to be with us. This will be especially applicable to those attending the A. M. A. meeting at St. Louis, as they can stop off with us, renew old acquaintances and resume their journey.

Most cordially yours,
WM. R. BATHURST, M.D.,
Secretary, Arkansas Medical Society.
Little Rock, Ark., March 6, 1922.

COMING EXAMINATION

Editor, SOUTHERN MEDICAL JOURNAL:

The dates for the next two examinations of the National Board of Medical Examiners are as follows: Parts I and II, June 19, 20, 21, 22 and 23, 1922; Parts I and II, September 25, 26, 27, 28 and 29, 1922.

Applications for the June examination should be in the Secretary's office not later than May 15, and for the September examination not later than June 1. Application blanks and circulars of information may be had by writing to the Secretary, Dr. J. S. Rodman, 1310 Medical Arts Building, Philadelphia, Pa.

Very truly yours,
J. S. RODMAN, M.D.,
Secretary, National Board of Medical Examiners.
Philadelphia, Pa., March 16, 1922.

Book Reviews

The Intestinal Protozoa of Man. By Clifford Dobell, M.A., F.R.S., Protistologist, Medical Research Council, National Institute for Medical Research, London, and F. W. O'Conner, M.R.C.Sc., L.R.C.P., D.T.M.&H., Wandsworth Scholar, London School of Tropical Medicine. 8 plates, 2 text figures and 211 pages. New York: William Wood & Co. Cloth, $4.50 net.

The book is divided into ten chapters and covers the subject thoroughly from an elementary point of view, which is the object of the author as stated in the preface.

It is of great advantage to the medical profession for men who are fully conversant with a subject to present the facts in an elementary text book such as this is.

The plates are well executed and there are no typographical errors.

To all those interested in intestinal protozoa the book will prove of value.

Neoplastic Diseases. By James Ewing, M.D., Professor of Pathology, Cornell University Medical College, New York. Second edition. 1054 pages with 514 illustrations. Philadelphia and London: W. B. Saunders Co., 1922.

As indicated in the title, "Neoplastic Diseases," Ewing has approached the study of tumors from a point of view that would emphasize their organ relationships and clinical peculiarities rather than their cytologic and histogenetic characteristics. His attitude approaches that of the writer on medicine who discusses briefly the general phenomena of inflammation but occupies himself particularly with inflammation as it affects lung or heart and points out carefully the natural history of the resulting organ disease with its more or less specific clinical phenomena.

In accordance with this conception Ewing gives us a few well written introductory chapters on the general biology of tumors, follows with a consideration of the specific tumor types as determined by their gross and microscopic structure, and then proceeds in the major part of the work to a study of tumor forms as they affect the different organs and organ systems.

Gastric cancer is treated not as an epithelial tumor that happens to become resident in the stomach, but rather as a definite disease of the stomach accompanied by the presence of tumor of one or another anatomical type. It differs from cancer of the skin or cancer of the uterus by reason of a more or less characteristic natural history whose salient features are discussed in detail, both as they affect our knowledge of tumor formation and more particularly as they are evidenced in the clinical course and the subjective and objective signs of the disease. The viewpoint is not new, but the strong insistence upon its validity distinguishes the author's work as an earnest effort toward bringing light into the present chaos of tumor study.

The book is encyclopedic in its scope. Its lengthy tables of reference testify to the thoroughness with which the literature has been scrutinized, while the excellent discussion of the many debated questions that are encountered testify to the author's clear thinking and keen judgment as well as to his wide personal experience in practical tumor study. When the real nature of neoplasms shall have been discovered, their entire story must be rewritten and simplified. Until such time comes, the present volume will remain the most notable contribution of American scholarship in its field, and as such will be consulted as a standard work of reference by pathologist and clinician alike.

Essays on Surgical Subjects. By Sir Berkeley Moynihan, K.C.M.G., C.B., Leeds, England. 253 pages. Illustrated. Philadelphia and London: W. B. Saunders Co., 1921.

There are nine little essays on a variety of subjects, namely, "The Murphy Memorial Oration," "The Ritual of a Surgical Operation," "The Diagnosis and Treatment of Chronic Gastric Ulcer," "Disappointments After Gastro-Enterostomy," "Intestinal Stasis," "Acute Emergencies of Abdominal Disease," "The Gifts of Surgery to Medicine," "The Surgery of the Chest in Relation to Retained Projectiles," and "The Most Gentle Profession." All have been published elsewhere.

This book of essays furnishes a delightful collection, representing as it does both general and scientific subjects. To those interested in any branch of medicine, to those who are engaged in surgical practice and who do not wish to lose any advice which an authority like Moynihan has to offer, and above all to those who enjoy good medical English, this book of essays will appeal with great force.

Acute Epidemic Encephalitis (Lethargic Encephalitis). An Investigation by the Association for Research in Nervous and Mental Diseases. Report of the papers at the meetings of the Association, New York City, December 28 and 29, 1920. Prepared under the direction of Walter Timme, M.D., Pearce Bailey, M.D., Lewellys F. Barker, M.D., Sanger Brown, 2d, M.D., Charles L. Dana, M.D., J. Ramsey Hunt, M.D., Foster Kennedy, M.D., George Kirbey, M.D., Hugh T. Patrick, M.D., Bernard Sachs, M.D., William S. Spiller, M.D., Israel Straus, M.D., E. W. Taylor, M.D., Fredrick Tilney, M.D., and T. H. Weisenburg, M.D. With 35 figures and a frontispiece and 258 pages. New York: Paul B. Hoeber, 1921. Cloth, $2.50.

This little monograph represents the result of the investigation of lethargic encephalitis by members of the Association selected because of their special training in the phases assigned them.

The book includes a preface and an introduction, the latter being the presidential address of Dr. Walter Timme. The text proper is divided into the following chapters:

I. General and Historical Considerations, Incidence, Etiology and Pathogenesis; II. Symptomatology: Symptoms Referable to the Brain; III. Symptomatology: Symptoms Referable to Spinal Cord and Peripheral Nerves; IV. Symptomatology: Psychotic Manifestations of Epidemic Encephalitis; V. Diagnosis, Course Prognosis, Late Results; VI. Morbid Anatomy: Pathology of the Brain and Spinal Cord, Lesions Outside the Nervous System; and VII. Bacteriology and Animal Experimentation; Further Studies in Pathogenesis, Immunology and Physiological Functionating.

It is seen from the above contents that the monograph is very complete. Each article is carefully written by an authority and is followed by questions asked the author by members of the Association with his answers verbatim. At the end of each chapter the commission appointed by the Association makes a summary of the facts presented.

The chapter on Treatment, by Dr. Edwin Garvin Zabriskie, is omitted, but the questions and answers of this section are included in Chapter V, as well as the commission's conclusions as to treatment.

Pages 41 to 158 are given to the bibliography of this disease. The figures are reproductions of photomicrographs and are well executed. The text is free from typographical errors.

The work is to be recommended to all physicians, for it is most worthy. It is full enough of details for the internist or neurologist, and at the same time is so clearly expressed that the general practitioner can use it without being hampered by a mass of bewildering details and technicalities.

Collected Papers of the Mayo Clinic, Rochester, Minn. Edited by Mrs. M. H. Mellish. Vol. xii, 1920. Published September, 1921. 1392 pages. Profusely Illustrated. Philadelphia and London: W. B. Saunders Co., 1921.

As its name indicates this work is a collection of the papers which were published during the year by members of the staff of the Mayo Clinic. In all there are 134 articles on surgical, medical, laboratory, experimental and general subjects.

The book is of great value, including as it does the latest reports which are usually based upon a very much larger amount of data than most clinics possess. This fact, together with the recognized standing of the staff of the Mayo Clinic, renders the first appearance of the "Collection" an anticipated event of the year. The present volume in every respect meets the high standard of excellence set by those of former years.

Psychoanalysis, Its Theories and Practical Application. By A. A. Brill, Ph.B., M.D., Lecturer on Psychoanalysis and Abnormal Psychology, New York University; Formerly Adjunct Professor of Psychiatry, Post Graduate Medical School, New York. 468 pages. Third Edition, Thoroughly Revised. Philadelphia and London: W. B. Saunders Co. Cloth, $5.00 net.

The former editions of Dr. Brill's work were accepted by those of the profession who followed the teaching of the Freudian school of psychiatry as a valuable elementary exposition of the subject.

In this edition Dr. Brill has carefully revised the text; and the newer writings of the Freudian school are mentioned with suitable comments.

The book is a very excellent presentation of Freudian conceptions and the author has succeeded in presenting a complex subject very admirably.

The Principles of Gynaecology. A Manual for Students and Practitioners. By W. Blair Bell, B.S., M.D., London, etc., Gynaecological Surgeon, Royal Infirmary, Liverpool; Lecturer in Clinical Gynaecology, University of Liverpool. Sometime Examiner, Gynaecology and Obstetrics, Royal College of Physicians and Surgeons, England, and to the Universities of Dublin and Belfast; Arris and Gale Lecturer and Hunterian Professor, Royal College of Surgeons, England. Third Edition. 660 pages. New York: Wm. Wood & Co., 1919.

The author of this well known work is an Englishman whose scientific work in gynecology has long been quoted by writers all over the world.

From an operative viewpoint the book is of but average excellence. However, in those branches which are of the greatest help to the student and practitioner, namely, pathology and diagnosis, the work is unusually good.

Different countries have somewhat different methods of practice of medicine, and it is true also of the specialty of gynecology. Bell's work is one of the best English text books. Its wise emphasis upon pathology is a characteristic of foreign works and is a feature worthy of more widespread adoption by American authors. The book is to be highly commended for the originality of its author and for the clear manner in which he handles the subject.

Vice and Health. Problems—Solutions. By John Clarence Funk, M.A., LL.B., Director, Bureau of Protective Social Measures, Pennsylvania State Health Department; Scientific Assistant, U.S.P.H.S.; Formerly U. S. Navy Law Enforcement Representative; Vice-Agent, U. S. Department of Justice; Supervising Inspector, U. S. Office of Naval Intelligence. 174 pages. Philadelphia and London: J. B. Lippincott Co., 1921. Cloth, $1.50.

Funk dedicates his monograph on prostitution and the social diseases to the League of Women Voters, as it is from that powerful and constructive body that we may expect the greatest fight for the suppression of vice. The eleven chapters deal with "Prostitution and Its Causes," "Prostitution and Its Manifestations," "The Business Side of Prostitution," "Results of Prostitution," "The Government's Fight," "Medical Measures," "Law Enforcement," "Medico-Legal Measures," "Education," "Welfare and Rehabilitation," and "Good Government."

The book is a brief sketch of the history of, and the fight against, prostitution, ably told and embodying many helpful suggestions.

Infant Feeding. By Clifford G. Grulee, M.D., LL.D., Associate Professor and Acting Head Department of Pediatrics, Rush Medical College. Fourth Edition, Thoroughly Revised. Octavo of 397 pages, illustrated. Philadelphia and London: W. B. Saunders Co., 1922. Cloth, $4.50 net.

The appearance of a fourth edition of this work on infant feeding bespeaks the continuing demand for it, and its contents bespeak the practical helpful views of the author and teacher. As he sets forth in the preface, he is not at one with some of his American fellow authors on several subjects, but proceeds to set forth the plain reasons for the positions taken by him.

The chapter on absorption and metabolism gives a full discussion of current conceptions of this fascinating if difficult subject, dealing with cell life, and cell function and dysfunction.

In classification of intestinal disorders, in general he follows Finkelstein. His discussion shows that the most common type of intestinal disorders known to the Southern section, the infectious colitic type, must of necessity be infrequent in Chicago and in Europe. This is demonstrated by his statement that in the intoxication type, corresponding to the colitic Southern type, the withdrawal of food and the administration of plenty of water bring a cessation of fever in twenty-four hours as a rule, even in cases with excessive temperatures. However, everyone recognizes that in regard to classifications, uniformity is not to be expected and that nothing brings about differences of opinion with greater ease.

On the milk question, he inclines to fresh, clean milk for those children deprived of human milk, but when this is not available he leans rather to a quickly-sterilized milk, than to the slower and more prolonged heating incident to pasteurization.

The chapters on feeding in the several diseases and diseased conditions are like the others, characterized by practical and well-reasoned ideas and suggestions.

The last chapter deals with the psychology of infant feeding and is well worth study and thought. The bibliography is full as is the index.

The work is sane, forceful and helpful.

An Introduction to the History of Medicine. With medical chronology, suggestions for study and bibliographic data. By Fielding H. Garrison, A.B., M.D., Lieutenant-Colonel, M.C., U. S. Army, Surgeon-General's Office, Washington, D. C. Third Edition Revised and Enlarged. Illustrated. 942 pages. Philadelphia and London: W. B. Saunders Co., 1922.

The editor of the "Index Medicus," the most useful periodical found in any medical library, would be expected to produce a scholarly work, and in that the reader of Garrison's "History of Medicine" will not be disappointed. The literature of the world has been culled for material, some of which is included for the first time in the present edition. In places the reviewer might regret that a more detailed account were not given of his favorites in medical biography, if he were not mindful of the fact that the great feature of Colonel Garrison's book is that he has given a short sketch of a large number of physicians worthy of memory, and that he has limited himself to a single volume of convenient size. Many foot note references enable one to go more deeply into any particular subject.

Like its predecessors, this edition will form one of the essential reference books of every medical library both public and private. Brief and yet scholarly, its construction is a credit to the author as well as to the important branch of our Government of which he is a distinguished officer.

Abdominal Pain. By Prof. Dr. Norbert Ortner, Chief of the Second Medical Clinic, University of Vienna. Authorized Translation by William A. Brams, M.D., Formerly Lieutenant-Commander, M.C., U.S.N., and Dr. Alfred P. Luger, First Assistant, Second Medical Clinic, University of Vienna. Translation of Second Edition. 362 pages. New York: Rebman & Co., 1922.

This book limits itself to a consideration only of conditions whose presenting symptom is abdominal pain of a non-traumatic origin. It is not the only work that has appeared on pain, but it seems to be the only one limited to abdominal pain.

First, the author considers the diffuse variety and then pain in each of the divisions of the abdomen and also certain combinations of them. It ends with a consideration of "Radiating Abdominal Pain," the "Relation of Abdominal Pain to the Intake of Food." "Abdominal Pain During Defecation," "Abdominal Pain Associated with a Sensation of Anxiety," "Abdominal Pain Associated with Constipation" and "Abdominal Pain Associated with Menstruation."

It is hardly necessary to state that the author does not consider pain a diagnostic symptom or sign in itself, but, as he says, it "often points out the direction we must follow in the objective examination in order to arrive at the proper diagnosis." It is considered as the starting point in the differential diagnosis. Incidentally, along with the consideration of pain other points of differential diagnosis are ably discussed. The book is a diagnostic aid to medicine, unique but quite useful.

An Index of Treatment. By various writers. Edited by Robert Hutchinson, M.D., F.R.C.P., Physician, London Hospital; Physician, Hospital for Sick Children, Great Ormard Street; and James Sherren, C.B.E., F.R.C.S., Surgeon, London Hospital; Consulting Surgeon, Poplar Hospital for Accidents. Revised to conform to American usage by Warren Coleman, M.D., Assistant Professor of Medicine, University and Bellevue Hospital Medical College; Visiting Physician, Bellevue Hospital, New York City. Eighth Edition, Revised and Enlarged. 1029 pages. Illustrated. New York: William Wood & Co., 1921. Cloth, $12.00.

In a way this work is a sort of one-volume encyclopedia of treatment, both medical and surgical with the exception of the management of labor. The articles are arranged alphabetically. Surgical procedures only of a more or less simple nature are given, as the book is intended primarily as a complete guide for the general practitioner who usually does not care to invade very far the territory of the specialties.

A desirable feature of this work is that one finds the name of the author of each article subscribed to it so that the reader may weigh the value of the advice which is given. Incidentally it may be said that the contributors include many of the most celebrated names in the profession of the British Isles.

While of little value to a specialist in any line of practice, the "Index of Treatment" offers great possibilities of usefulness as a single volume, ready reference work for the general practitioner who makes up the great majority of medical men.

This new eighth edition is well revised and is a credit to its editors and the publishers.

Gynecology. By William P. Graves, A.B., M.D., F.A.C.S., Professor of Gynecology, Harvard Medical School: Surgeon-in-Chief, Free Hospital for Women, Brookline; Consulting Physician, Boston Lying-in Hospital. With 368 Half-Tone and Pen Drawings by the Author and 123 Microscopic Drawings by Margaret Conoree and Ruth Huestis. With 100 of the Illustrations in colors. 885 pages. Second Edition, Thoroughly Revised. Philadelphia and London: W. B. Saunders Co., 1921. Cloth, $9.00.

This new edition, like the former, impresses one with the completeness of the work and with the excellence of the drawings, many of which were made by the author himself.

Not only are the usual subjects considered, but also there are well written sections on the organs of internal secretion as related to gynecology; the relation of gynecology to the general organism; and operations upon the abdominal wall, the kidney, the ureter, the bladder, the rectum, varicose veins of the leg, the Percy cautery for cancer of the cervix and the technic for the application of radium.

For its completeness, its arrangement and the excellent method of its presentation, Graves' "Gynecology" continues to be the best single volume on the subject in the English language.

Diseases of the Eye. (A handbook of ophthalmic practice for students and practitioners.) By George E. de Schweinitz, M.D., LL.D., University of Pennsylvania, Professor of Ophthalmology, University of Pennsylvania; Ophthalmic Surgeon, University Hospital; Consulting Ophthalmic Surgeon, Philadelphia General Hospital and Orthopedic Hospital and Infirmary for Nervous Diseases; Colonel, M.R.C., U. S. Army. Ninth Edition. Reset, with 415 Illustrations and 7 colored plates. Philadelphia and London: W. B. Saunders Co., 1921.

De Schweinitz's "Diseases of the Eye" is always a welcomed visitor and never fails to present the essential details of the newer methods in the practice of ophthalmology as well as a thorough revision of its former editions. In the ninth edition there is a wealth of new material appearing for the first time in a standard text book, and in addition to a complete revision of former chapters, the author has rearranged the subject matter with many additions in his own masterly style.

Heart Disease and Pregnancy. By Sir James MacKenzie, M.D., F.R.C.P., LL.D., Edinburgh and Aberdeen, F.R.C.P.I.; Honorary Consulting Physician to His Majesty the King in Scotland: Director, Institute for Clinical Research, St. Andrews; Consulting Physician, Victoria Hospital, Burnley, and the London Hospital. 21 text figures and 138 pages. London, Oxford and New York: University Press, 1922. Cloth, $3.00.

Any one who has had the pleasure of following Sir James MacKenzie's writings welcomes any new contribution from him, for Sir James never writes unless he has a message of importance to convey.

The present book is written to fill a much-needed phase of obstetrics, which, to quote the author, has been badly neglected.

Methods of diagnosis and treatment are given in such a manner that they are applicable by any one attending a woman in confinement.

Characteristic of the writings of MacKenzie, the book is practical and can be read with profit even by those who are neither internists nor strictly specialists in obstetrics.

Its completeness and the position of its author as the foremost cardiologist of his time, make it authoritative.

Protein Therapy and Non-Specific Resistance. By William F. Peterson, M.D., Associate in Pathology, University of Illinois, College of Medicine, Chicago, Ill. With an introduction by Joseph L. Miller, M.D., Professor of Medicine, Rush Medical College, University of Chicago, Chicago, Ill. Seven text figures and 314 pages. New York: The Macmillan Company, 1922.

Two factors stand out most prominently in reviewing this work: first, that the author is most familiar with his subject; and, secondly, that the extensive quotations from other writers detract greatly from the book.

As a reference book for one who is already familiar with the subject, it will be of great interest and help, but it is certainly unsuited to the needs of one wishing to acquire an elementary knowledge on this subject.

The author gives his data in full and requires the reader to draw his own deductions. A full bibliography is appended.

Only two misprints occur in the text. The binding and general workmanship are a credit to the publishers.

The Glands Regulating Personality. A Study of the Glands of Internal Secretion in Relation to the Types of Human Nature. By Louis Berman, M.D., Associate in Biological Chemistry, Columbia University; Physician to the Special Health Clinic, Lenox Hill Hospital. 299 pages. New York: The Macmillan Company, 1921.

Dr. Berman appears to be very clever, perhaps brilliant, very well read, and cock-sure. Every statement is positive and suggests no room for doubt. He quotes constantly from authorities upon his subjects, but gives no exact references, that is, he commits an unpardonable sin in scientific literature in that he gives no bibliography.

He discusses first the history of the work upon internal secretions, the discovery of the ductless glands, then takes the glands separately, thyroid, pituitary, adrenals, gonads, and thymus, and their action upon different parts of the body, and thence their effect upon the personality.

The chapter outlining the condition of the internal secretions of such historic characters as Napoleon, Darwin, Nietzsche, is suggestive and most absorbing reading. He mentions Julius Caesar and others of a more distant age, but goes particularly into the personalities of the first mentioned, because they are sufficiently recent for their medical records to be obtainable and to possess a certain accuracy.

The whole is an extremely interesting, if highly speculative and perhaps highly imaginative, work. It will doubtless prove most popular with the laity and one may predict with almost certainty that it will in the near future furnish the basis of one of Milton Keene Hirshberg's effusions in the daily press.

Medical and Surgical Reports of the Episcopal Hospital of Philadelphia. Vol. V. Illustrated. 498 pages. Philadelphia: Press of Wm. J. Dornan, 1920.

It is a pleasure once more to receive a copy of the Episcopal Hospital's "Reports" which, on account of the war, were discontinued after 1916. This volume is made up of papers by various staff members and in all numbers some 58 articles. It is a collection of writings all of which appear to have been published elsewhere, but which are none the less readable and helpful on that account. Because of the variety of subjects treated, it is impossible to consider the papers individually. It is a highly creditable collection, a certain amount of which represents original investigation, as in the case of Dr. John P. Jones' "Experimental Implantation of Foreign Tissue Into the Lumen of Large Arteries."

Southern Medical News

ALABAMA

All doctors in Alabama interested in diseases of children, whether specializing in pediatrics or doing general work, will be interested to know that there will be organized in Birmingham on Monday, April 17, a State Pediatric Society. This is the day before the meeting of the Alabama State Medical Association. It is hoped that a large number of Alabama doctors will attend this organization meeting of a State Pediatric Society. For further information write Dr. Jerome Meyer, Woodward Building, Birmingham, Ala.

The annual meeting of the Alabama State Medical Association will be held in Birmingham April 18-21.

St. Vincent's Hospital, Birmingham, operated by the Sisters of Charity, is to have a new addition which will cost $100,000.

A public health institute in conjunction with the Social Hygiene Conference was held in Birmingham recently.

Dale County Medical Society has elected the following officers: Dr. Augustus D. Matthews, Ariton, President; Dr. Malcolm O. Grace, Ozark, Secretary-Treasurer.

Deaths

Dr. Edward Augustus Cook, Kirks Grove, aged 64, died December 18 from chronic cystitis and gastritis.

ARKANSAS

The annual meeting of the Arkansas (State) Medical Society will be held in Little Rock May 17-19. This will be the "home-coming" meeting, and it is desired that old-time Arkansas doctors, now practicing in other states, be in attendance.

Crawford County Medical Society has elected the following officers: Dr. O. M. Bourland, Van Buren, President; Dr. S. C. Grant, Mulberry, Vice-President; Dr. S. D. Kirkland, Van Buren, Secretary; Dr. M. S. Dibrell, Van Buren, Treasurer.

Searcy County Medical Society has elected the following officers: Dr. A. S. Baker, Snow Ball, President; Dr. J. A. Henley, Marshall, Vice-President.

Garland County Medical Society has elected the following officers: Dr. Grayson E. Tarkington, President; Dr. W. L. Snider, Vice-President; Dr. Ossian H. King, Secretary-Treasurer.

Greene County Medical Society has elected the following officers: Dr. B. E. Ellis, Greenway, President; Dr. P. L. Dickson, Paragould, First Vice-President; Dr. W. M. Majors, Lafe, Second Vice-President; Dr. F. M. Scott, Paragould, Secretary-Treasurer.

Hempstead County Medical Society has elected the following officers: Dr. Don Smith, President; Dr. W. M. Garner, Vice-President; Dr. L. M. Lile, Secretary.

Mississippi County Medical Society has elected the following officers: Dr. W. S. McCall, President; Dr. L. D. Massey, Vice-President; Dr. F. D. Smith, Secretary-Treasurer.

Pulaski County Medical Society has elected the following officers: Dr. R. F. Darnell, Little Rock, President; Dr. Dewell Gann, Jr., Little Rock, Vice-President; Dr. R. J. Calcote, Little Rock, Secretary; Dr. W. R. Bathurst, Little Rock, Treasurer.

Washington County Medical Society has elected the following officers: Dr. Charles R. Swift, Elkins, President; Dr. J. S. Cannon, West Fork, Vice-President; Dr. F. R. Morrow, Fayetteville, Secretary; Dr. J. R. Southworth, Fayetteville, Treasurer.

Dr. W. P. Parks, for the past eight years Superintendent of Hot Springs National Park, has resigned, and Dr. Clarence Waring, of the United States Public Health Service, has been appointed to succeed him.

Contracts have been let for immediate construction of a modern hospital at Ozark.

Dr. Morgan Smith, Dean of the University of Arkansas School of Medicine, Little Rock, announces the resumption of the junior and senior years upon completion of the new City Hospital and the Baptist Hospital.

The A. Bernard Building, Russellville, is being converted into a Government hospital for the treatment of trachoma.

Deaths

Dr. David F. Wilson, Hampton, aged 60, died January 28.

Dr. William A. Smith, Walnut Ridge, aged 60, died January 30.

Dr. John Martin Bearden, Springdale, aged 44, died February 5 from tetanus following the extraction of an infected tooth.

Dr. James John Johnson, Biggers, aged 54, died recently.

Dr. William B. Yeates, Taylor, aged 68, died February 14.

DISTRICT OF COLUMBIA

It has been announced by Chairman Langley, of the House Public Buildings and Grounds Committee, that President Harding has approved the appropriation of $16,000,000 for the construction of additional hospitals for disabled ex-service men.

Dr. Allen J. McLaughin, U. S. Public Health Service, Washington, has been elected a member of the Board of Councilors of the Eyesight Conservation Council of New York, N. Y.

The Woman's Welfare Association, Washington, has established a clinic of applied immunology for working women and girls in an effort to create better womanhood.

The appropriation bill, Washington, recently presented to the House and passed contains appropriations for medical charities in the District of Columbia; $850,000 is appropriated for the support of the indigent insane at St. Elizabeth's Hospital, and $246,410 for completing the construction of the Gallinger Municipal Hospital.

Deaths

Dr. George Clement Samson, Washington, aged 73, died February 11.

Dr. Leland Walker, Washington, aged 96, died February 5.

Dr. Newton Elisha Webb, Washington, aged 56, died suddenly from heart disease February 11, while attending a patient.

FLORIDA

The Florida State Medical Association will be held in Havana, Cuba, June 30. The Florida East Coast Railway will run a special Pullman train to Key West, leaving Jacksonville on June 28. Sailing connections will be made at Key West. The P. & O. Steamship Company will have a ship sailing from Tampa on the same date for the convenience of those living in that section of the State.

A contract was recently awarded for the erection of the new Children's Home, Tampa, at a cost of $110,000.

Work is being completed on a new nurses' home for the Norton F. Plant Hospital, Clearwater.

Early in 1921 the home of Dr. Leonard, Bradentown, was purchased by Dr. Charles William Larrabee and converted into a hospital, known as the Larrabee Hospital. Since then many changes have been made. The Hospital is equipped with a complete x-ray, the latest improved lung motor, new surgical instruments and other conveniences. Dr. Larrabee has recently purchased a Studebaker ambulance of the latest model for the Hospital.

The addition to the New Home Sanatorium, Jacksonville, was recently opened. The addition is a three-story and basement structure.

Deaths

Dr. Thomas Howell, Havana, died February 3.

Dr. Daniel L. Campbell, DeFuniak Springs, aged 87, died January 27 from senility.

GEORGIA

The Georgia State Medical Association will be held in Columbus May 3-4-5.

Muscogee County Medical Society has elected the following officers: Dr. Jesse M. Anderson, President; Dr. Clifford A. Peacock, Vice-President; Dr. Willis P. Jordan, Secretary-Treasurer.

Tri-County Medical Society has elected the following officers: Dr. J. S. Beard, Edison, President; Dr. C. R. Barksdale, Blakely, Vice-President; Dr. C. K. Sharp, Arlington, Secretary-Treasurer.

Telfair County Medical Society has elected the following officers: Dr. W. H. Born, McRae, President; Dr. Frank Mann, Lumber City, Vice-President; Dr. C. J. Maloy, Helena, Secretary-Treasurer.

Sumter County Medical Society has elected the following officers: Dr. B. T. Wise, Plains, President; Dr. F. L. Cato, Plains, Vice-President; Dr. J. C. Logan, Plains, Secretary-Treasurer.

Elbert County Medical Society has elected the following officers: Dr. O. B. Walker, Bowman, President; Dr. D. V. Bailey, Elberton, Vice-President; Dr. B. B. Mattox, Elberton, Secretary-Treasurer.

Pike County Medical Society has elected the following officers: Dr. J. C. Beauchamp, Williamson, President; Dr. I. B. Howard, Williamson, Vice-President; Dr. M. Head, Zebulon, Secretary-Treasurer.

Campbell County Medical Society has elected the following officers: Dr. W. R. Camp, Fairburn, President; Dr. A. D. Jones, Tyrone, Vice-President; Dr. T. J. Busey, Tyrone, Secretary-Treasurer.

Upson County Medical Society has elected the following officers: Dr. H. A. Barron, Thomaston, President; Dr. E. W. Carter, Thomaston, Vice-President; Dr. R. L. Carter, Thomaston, Secretary-Treasurer.

Haralson County Medical Society has elected the following officers: Dr. E. L. Gilmore, Tallapoosa, President; Dr. T. J. Johns, Tallapoosa, Vice-President; Dr. L. J. Johns, Tallapoosa, Secretary-Treasurer.

Gwinnett County Medical Society has elected the following officers: Dr. N. J. Guthrie, Norcross, President; Dr. D. C. Kelley, Secretary-Treasurer.

Hall County Medical Society has elected the following officers: Dr. J. K. Burns, Jr., Gainesville, President; Dr. H. S. Titshaw, Gainesville, Vice-President; Dr. Pratt Cheek, Gainesville, Secretary-Treasurer.

Stewart-Webster County Medical Society has elected the following officers: Dr. J. F. Lunsford, Preston, President; Dr. J. M. Kenyon, Richland, Vice-President; Dr. R. M. Lovvorn, Richland, Secretary-Treasurer.

Screven County Medical Society has elected the following officers: Dr. S. V. Mims, Sylvania, President; Dr. Louis Hannah, Sylvania, Secretary; Dr. L. F. Lanier, Sylvania, Treasurer.

Emanuel County Medical Society has elected the following officers: Dr. V. E. Franklin, Graymont, President; Dr. A. C. Johnson, Garfield, Vice-President; Dr. L. I. Lanier, Wesley, Secretary-Treasurer.

Ben Hill County Medical Society has elected the following officers: Dr. W. D. Dorminy, Fitzgerald, President; Dr. L. E. Thornton, Fitzgerald, Vice-President; Dr. W. P. Coffee, Fitzgerald, Secretary-Treasurer.

Banks County Medical Society has elected the following officers: Dr. M. P. Deadwyler, Maysville, President; Dr. G. A. Castellow, Homer, Vice-President; Dr. O. N. Harden, Homer, Secretary-Treasurer.

Cherokee County Medical Society has elected the following officers: Dr. R. M. Moore, Waleska, President; Dr. T. J. VanSant, Woodstock, Vice-President; Dr. George C. Brooke, Canton, Secretary-Treasurer.

Dr. Phinizy Calhoun and Dr. Arthur G. Fort, Atlanta, announce the removal of their offices to Suite 21, Doctors' Building, 436 Peachtree Street.

Dr. John Calvin Weaver, Surgeon, U. S. Penitentiary, Atlanta, has resigned his position and will resume general practice.

Contracts have been awarded for the construction of seven Government hospital buildings at Augusta at a cost of $283,000.

Deaths

Dr. Eugene Jeffrey Brinson, Americus, aged 49, died February 2 from cerebral hemorrhage.

Dr. F. A. Thomas, Americus, aged 66, died February 15.

Dr. Thomas A. Wood, Dawson, aged 65, died January 1 from cerebral hemorrhage.

Dr. J. M. Stalling, Grantville, aged 90, died recently from cerebral hemorrhage.

Dr. J. R. Groover, Key, aged 81, died January 16 from senility.

Dr. James A. Martin, Mount Zion, aged 72, died January 21.

Dr. Alfred Turpin Calhoun, Cartersville, aged 59, died January 31.

Dr. Marshall Ford Morris, Atlanta, aged 28, died suddenly February 18.

KENTUCKY

Bourbon County Medical Society has elected the following officers: Dr. Wm. C. Ussery, Paris, President; Dr. L. R. Henry, North Middletown, First Vice-President; Dr. F. M. Faries, Paris, Second Vice-President; Dr. M. J. Stern, Paris, Secretary-Treasurer.

Christian County Medical Society has elected the following officers: Dr. Austin Bell, President; Dr. O. L. Barnes, Vice-President; Dr. W. S. Sandbach, Secretary-Treasurer.

Midland Medical Society has elected the following officers: Dr. John W. Scott, President; Dr. C. Barrow, Georgetown, Vice-President; Dr. W. H. McLean, Lexington, Secretary-Treasurer.

A bond issue of $1,000,000 has been approved by members of the Board of Tuberculosis Hospitals for improvements and new buildings at Waverly.

Dr. Fred Anderson Jones, Paducah, has been appointed City Physician, succeeding Dr. Edward Adams.

Dr. A. G. Ireland, for two years head of the dispensary at the University of Kentucky, Lexington, has resigned, and has been succeeded by Dr. William H. McLean.

Dr. David Y. Ragan, Coal Spring, has been appointed County District Physician.

It is announced that the I. O. O. F. Lodge will build a new hospital at Eminence to cost $25,000.

Dr. Lorenzo O. Smith recently opened the Riverside Hospital, Harlan.

Dr. O. P. Henry, Mt. Vernon, has been appointed Surgeon for the Chesapeake and Ohio Railroad.

The State Society of Physical Education was recently organized in Louisville. Dr. P. K. Holmes, Lexington, head of the Department of Hygiene, University of Kentucky, was elected President, and Miss Mary DeWitt Snyder, Director of Tgail's End Camp for Girls, near Richmond, was elected Secretary-Treasurer.

Dr. W. N. Lipscomb, Georgetown, Scott County Health Director, has resigned to accept a position with the Department of Hygiene of the State University.

Dr. George M. Neal has been appointed Health Officer of Adams County.

Deaths

Dr. Emil Theodore Grasser, Louisville, aged 48, died January 23.

Dr. William A. Rice, Louisa, aged 62, died February 7 from pneumonia.

Dr. Jonathan N. Shemwell, Barlow, aged 89, died recently.

Dr. Thomas Jefferson Moneyhon, Brooksville, aged 71, died February 12, after an illness of several weeks.

Dr. Edward Christopher, Blackey, aged 26, died recently from pneumonia.

Dr. William F. Pennebaker, Shakertown, aged 80, died recently.

Dr. James Lucilius Neel, Bowling Green, aged 72, died recently from cerebral hemorrhage.

Dr. John Bernard Voor, Louisville, aged 31, died in Warsaw February 14 from typhus contracted while on inspection duty at refugee camps in Baranow, Poland.

LOUISIANA

The Louisiana State Medical Society will meet in Alexandria April 11-12-13. Hotel Bentley will be headquarters.

Plans have been completed for a new building at Baton Rouge to be known as Our Lady of the Lake Sanitarium. It will have a capacity of 100 beds and will cost $200,000.

The Rapides Parish Medical Society has elected the following officers: Dr. Fayette C. Ewing, Alexandria, President; Dr. James A. White, Alexandria, First Vice-President; Dr. Frank M. Lett, Lecompte, Second Vice-President; Dr. S. Cicero Holloman, Alexandria, Secretary.

The Claiborne Parish Board of Health was organized recently and the following elected members: Dr. John W. Featherstone, Homer; Dr. Curtis A. Bailey, Athens, and Dr. Henry C. Baucum, Haynesville.

A contract has been let for the building of the Shriners' Hospital for Crippled Children, Shreveport, at a cost of $111,000.

It has been announced that plans are being made to erect a new modern hospital on the University campus, New Orleans, at a cost of approximately $2,000,000. The hospital will be in connection with the medical school of the University.

Dr. Joseph A. Estopinal, New Orleans, has been appointed a member of the Board of Health for St. Bernard Parish.

Deaths

Dr. John Gartman Martin, New Orleans, aged 47, died January 19.

Dr. J. T. Bringier, Burnside, aged 60, died February 15.

MARYLAND

The Rockefeller Foundation has given the Johns Hopkins University, Baltimore, $6,000,000 for the School of Hygiene and Public Health. One million dollars will be available for the erection of new buildings for the school and $5,000,000 for an endowment covering its maintenance.

Dr. Charles B. Thompson, Baltimore, has been appointed Psychiatrist in the City public schools.

A contract was recently awarded for a one-story addition to the Harriett Lane Home for Invalid Children, Baltimore. The addition is to cost $12,000.

Dr. William S. Thayer has been made President of the Friends of Art Society of Baltimore.

The women members of the First Unitarian Church, Baltimore, have established a clinic for children who work. This is being encouraged by members of the State Board of Labor and Statistics, to which children must apply for permits to work. Dr. Lawson Wilkins, of the Johns Hopkins Hospital, has held a preliminary clinic at the Parish House, and clinics will be held there every Friday morning.

It has been announced that Dr. Ira L. Fetterhoff has purchased the Biedler-Sellman Hospital, Baltimore, and will operate it under the name of the Homewood Hospital.

The following physicians have been appointed coroners for a term of two years from the first Monday in May: Drs. J. Tyrrell Hennessy, Harry K. Gorsuch, Otto M. Reinhardt, Thomas B. Horton, James M. Fenton, John J. Morrissey, William T. Riley, J. Knox Insley and George C. Blades.

Dr. John Miller Train Finney, Jr., Baltimore, and Miss Virginia Lee Milton, Wilmington, N. C., were married February 1.

Dr. George C. Mediary, U. S. Public Health Service Hospital, Fort McHenry, and Miss Eva Mary Hilton, Baltimore, were married January 21.

Deaths

Dr. James H. Jarrett, Towson, aged 90, died February 12.

Dr. Walter Van Fleet, Glendale, aged 64, died January 27 following an operation.

Dr. William Culbert Lyon, Annapolis, aged 42, died February 6.

Dr. Edward Martin Wise, Baltimore, aged 67, died suddenly February 5 from heart disease.

Dr. Emanuel William Eilau, Baltimore, aged 68, died February 1 from heart disease.

MISSISSIPPI

The annual conference of the Southern Public Health Laboratory Association was held at Jackson March 17-18. The meeting was given over primarily to the discussion of laboratory technic; to the standardization of specimen containers and laboratory forms, and to the interpretation of reports.

The Coahoma County Antituberculosis Society has purchased a portable cottage to be loaned to tuberculosis patients.

The South Mississippi Charity Hospital, Laurel, is overcrowded and the Legislature has been asked to appropriate $100,000 for the erection of an annex for the exclusive use of negroes.

The new Charity Hospital to be erected at Meridian will cost $100,000.

Deaths

Dr. Shelton Alvin Ramsey, Drew, aged 32, died February 5 at St. Joseph's Hospital from pneumonia, resulting from a gunshot wound.

MISSOURI

The St. Louis Safety Council has appointed the following as an advisory committee to assist in the work of educating the people in health protection: Drs. Walter H. Fuchs, Martin C. Woodruff, Hanan W. Loeb, Nathaniel Allison, Albert H. Hamel, Edward J. Goodwin, Louis P. H. Bahrenburg, John Kennerly, J. P. Harper and E. Willette.

It has been announced by the Executive Committee of the Missouri State Medical Association that the next annual meeting will be held May 2-3-4 at Jefferson City instead of May 16-18 at Excelsior Springs, as previously announced.

The President of the Missouri Society for Mental Hygiene, Dr. M. A. Bliss, St. Louis, has announced that the National Society for Mental Hygiene will cooperate in establishing a psychiatric clinic to be attached to the Juvenile Court, St. Louis. Funds will be provided through the Rockefeller Foundation for sending to St. Louis a corps consisting of a trained psychiatrist, a psychologist and social workers to put the clinic into operation and to train persons for carrying on the work thereafter.

The Sisters of St. Mary, St. Louis, are planning to erect a seven-story building at an approximate cost of $100,000. The infirmary will accommodate 300 patients.

The Missouri Hospital Association was recently organized and the following officers elected: Dr. L. H. Burlingham, St. Louis, Superintendent of Barnes Hospital, President; Dr. B. A. Wilkes, St. Louis, Superintendent of the Missouri Baptist Sanitarium, First Vice-President; Miss Sarah H. Reitz, Mexico, Superintendent of Audrain County Hospital, Second Vice-President; Miss Louise Ament, St. Louis, Superintendent Lutheran Hospital, Secretary.

The St. John's Hospital, Springfield, conducted by the Sisters of Mercy, will have a new addition to be erected at a cost of $175,000.

The Amanda Hospital, Mexico, will have a new addition to be erected at a cost of $25,000.

Dr. Herman E. Pearse, Kansas City, has been appointed a member of the City Plan Commission, succeeding Mr. Louis Oppenstein.

Dr. J. Berry, St. Louis, and Miss Dora Anderson, Nashville, were married the early part of February.

Deaths

Dr. Benjamin Elisha Dawson, Kansas City, aged 69, died recently at the private hospital of his son, Canadian, Tex., following an operation for obstruction of the hepatic duct.

Dr. William S. Carrion, St. Joseph, aged 56, died November 15 from myocarditis.

Dr. Caleb Eugene Mathis, Kansas City, aged 63, died January 15, following an operation for prostatic hypertrophy.

Dr. Young Hance Bond, St. Louis, aged 75, died February 5 from angina pectoris.

Dr. Otto Augustus Wall, St. Louis, aged 75, was found dead in bed from heart disease February 13.

Dr. Adolph Neubert, St. Louis, aged 78, died February 9.

Dr. John Isbell, Washington, aged 77, died recently.

Dr. James P. Wright, Springfield, aged 78, died February 14 from cerebral hemorrhage.

Dr. William Carson, Shelbyville, aged 76, died February 10.

Dr. Jules Baron, Herculaneum, aged 62, died February 11 from heart disease.

Dr. Lloyd Henry Brannon, Hayti, aged 36, died recently.

Dr. Wesley Mellick, Nevada, aged 92, died recently.

NORTH CAROLINA

The North Carolina State Medical Association will hold its annual meeting in Winston-Salem, April 25-27.

Voters of Guilford County, in a recent election, approved a $100,000 bond issue for the erection of a tuberculosis sanatorium in High Point.

The addition to be erected at St. Peter's Hospital, Charlotte, will cost $60,000. The erection of this addition was made possible through contributions of J. H. Cutter and W. A. Erwin of $50,000 and $10,000.

A contract was recently let for fifteen new private rooms, installing a refrigerating plant and complete laundry equipment at the Park View Hospital, Rocky Mount, at a cost of approximately $20,000.

(Continued on page 40)

Benzylets
take the place of opium

in so many pathologic conditions that their use in "the morphine habit" seems quite logical; and the reported results are in the main good.

The dosage depends upon conditions; the rule seems to be to begin with two or three and repeat as often as required.

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(Continued from page 338)

The Zephyr Hill Sanitarium, Asheville, is being extensively repaired and altered.

The contract has been awarded for the erection of the Baptist State Hospital, Winston-Salem, at a cost of $133,690.

The order of B'Nai B'rith will build a tuberculosis sanatorium in Asheville.

The Lincoln Hospital for colored people, Durham, was recently destroyed by fire. The loss is estimated at between $10,000 and $15,000. Plans are being made to rebuild the hospital at a cost of $100,000.

Deaths

Dr. James William Flow, Kannapolis, aged 44, died February 8 from chronic nephritis.

Dr. Frederick Robert Farthing, Boone, aged 27, died February 14 at St. Joseph's Hospital from pneumonia.

OKLAHOMA

The annual meeting of the Oklahoma State Medical Association will be held in Oklahoma City May 9-11 instead of May 16-18, as previously announced.

Alfalfa County Medical Society has elected the following officers: Dr. Z. J. Clark, President; Dr. James Stevenson, Cherokee, Secretary-Treasurer.

Jefferson County Medical Society has elected the following officers: Dr. W. T. Andreskewski, Ryan, President; Dr. L. L. Wade, Ryan, Secretary-Treasurer.

Carter County Medical Society has elected the following officers: Dr. G. W. Amerson, Milo, President; Dr. J. T. Jackson, Marsden, Vice-President; Dr. D. S. Dsport, Ardmore, re-elected Secretary-Treasurer.

Comanche County Medical Society has elected the following officers: Dr. G. S. Barber, President; Dr. E. B. Mitchell, Vice-President; Dr. J. W. Mason, Secretary-Treasurer.

Canadian County Medical Society has elected the following officers: Dr. H. C. Brown, President; Dr. H. A. Dever, Vice-President; Dr. Jas. T. Riley, Secretary.

Garfield County Medical Society has elected the following officers: Dr. J. H. Hayes, President; Dr. P. A. Smythe, Vice-President; Dr. Glenn Francisco, Secretary-Treasurer.

Washington County Medical Society has elected the following officers: Dr. B. F. Staver, President; Dr. Wm. H. Kingman, Vice-President; Dr. J. P. Torrey, Secretary; Dr. Arthur North, Treasurer.

Grady County Medical Society has elected the following officers: Dr. Martha Bledsoe, President; Dr. J. C. Ambrister, Chickasha, Vice-President; Dr. R. R. Hume, Minco, Second Vice-President; Dr. A. B. Leeds, Chickasha, Secretary.

Pushmataha County Medical Society has elected the following officers: Dr. Ernest Ball, President; Dr. H. C. Joynson, Antlers, Vice-President; Dr. J. A. Burnett, Secretary-Treasurer.

Garvin County Medical Society has elected the following officers: Dr. W. E. Settles, Wynnewood, President; Dr. John R. Calloway, Paul's Valley, Vice-President; Dr. Jas. W. Stevens, Paul's Valley, Secretary-Treasurer.

Rogers County Medical Society has elected the following officers: Dr. A. M. Arnold, President; Dr. L. H. Henley, Vice-President; Dr. W. P. Mills, Secretary-Treasurer, all of Claremore.

Woodward County Medical Society has elected the following officers: Dr. E. L. Bagby, Supply, President; Dr. J. M. Workman, Vice-President; Dr. C. W. Tedrowe, Woodward, Secretary-Treasurer.

A modern tuberculosis hospital has recently been opened at Talihina.

Dr. Samuel P. Ross has resigned as City Health Officer of Ada.

A municipal hospital will soon be erected at Muskogee. More than two years ago a bond issue of $165,000 was voted for the building, but because of high cost of materials construction was delayed.

A contract has been awarded for the construction of a city hospital at Cushing at a cost of $50,000.

Dr. Claude Basil Norris and Miss Fannie Inez Bell, both of Oklahoma City, were married February 1.

Deaths

Dr. Reuben Pearce Tye, Chickasha, aged 70, died February 9.

Dr. T. B. Satterfield, Oklahoma City, aged 84, died January 24 at the University Hospital.

(Continued on page 42)

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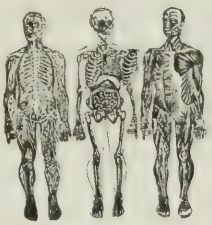

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(Continued from page 40)

Dr. Millard F. Decker, Comanche, aged 56, died suddenly at Corum December 29.

Dr. James H. Miller, Antlers, aged 68, died February 18.

SOUTH CAROLINA

The South Carolina State Medical Association will hold its annual meeting in Rock Hill April 18-20.

The Charleston Public Nursing Association held its first public meeting January 15 under the Presidency of Dr. A. T. Smythe.

The Greenville City Hospital staff has elected the following officers: Dr. R. C. Bruce, President; Dr. J. L. Anderson, Vice-President; Dr. J. D. Guess, Secretary.

Laurens County Medical Society has elected the following officers: Dr. W. T. Pace, Gray Court, President; Dr. J. W. Davis, Clinton, Vice-President; Dr. J. W. Beason, Gray Court, Secretary-Treasurer.

The Medical Society of the First District of South Carolina held its semi-annual meeting at Walterboro January 3. The following officers were elected: Dr. Chas. H. Esdorn, Walterboro, President; Dr. W. S. Judy, St. George, Secretary. Charleston was selected as the next meeting place.

Capt. Chas. V. Akin, officer in charge of the Bureau for the Control of Venereal Diseases, has been assigned to Jacksonville, Fla., to conduct field surveys in connection with the Child Hygiene Investigations.

Deaths

Dr. Arthur Blake Clarke, Plantersville, aged 51, died January 31 from lobar pneumonia.

TENNESSEE

The annual meeting of the Tennessee State Medical Association will be held in Memphis April 11-13.

Anderson County Medical Society has elected the following officers: Dr. W. L. Carden, Andersonville, President; Dr. J. S. Taylor, Leinart, Vice-President; Dr. J. S. Hall, Clinton, Secretary.

Bedford County Medical Society has elected the following officers: Dr. T. J. Coble, President; Dr. W. C. Kirkland, Vice-President; Dr. W. H. Avery, Secretary-Treasurer.

Blount County Medical Society has elected the following officers: Dr. G. D. LeQuire, Maryville, President; Dr. W. B. Loving, Vice-President; Dr. F. A. Zoller, Secretary.

Campbell County Medical Society has elected the following officers: Dr. L. M. Scott, Jellico, President; Dr. F. A. McClintock, Secretary.

Davidson County Medical Society has elected the following officers: Dr. A. W. Harris, Nashville, President; Dr. D. R. Pickens, Vice-President; Dr. J. Owsley Manier, Secretary.

Dyer County Medical Society has elected the following officers: Dr. W. P. Watson, President; Dr. B. G. Marr, Vice-President; Dr. R. L. Motley, Secretary-Treasurer.

Hamilton County Medical Society has elected the following officers: Dr. Willard Steele, Chattanooga, President; Dr. E. Dunbar Newell, Chattanooga, Vice-President; Dr. S. S. Marchbanks, Chattanooga, Secretary-Treasurer.

Hambien County Medical Society has elected the following officers: Dr. P. L. Brock, President; Dr. P. L. Henderson, Vice-President; Dr. C. T. Carroll, Secretary-Treasurer.

Henderson County Medical Society has elected the following officers: Dr. E. E. Waller, Juno, President; Dr. S. T. Parker, Lexington, Secretary.

Hickman County Medical Society has elected the following officers: Dr. W. K. Edwards, President; Dr. W. Thompson, Vice-President; Dr. John S. Beasley, Secretary.

Knox County Medical Society has elected the following officers: Dr. J. J. Ellis, President; Dr. R. H. Newman, Vice-President; Dr. Jesse C. Hill, Secretary-Treasurer.

Lauderdale County Medical Society has elected the following officers: Dr. J. W. Sanford, President; Dr. W. V. Sanford, Secretary.

Marion County Medical Society has elected the following officers: Dr. J. W. Kirkpatrick, President; Dr. W. R. Irish, Secretary.

Maury County Medical Society has elected the following officers: Dr. Robert Pillow, Jr., Columbia, President; Dr. E. M. Ragsdale, Santa Fe, Vice-President; Dr. B. W. Woodward, Spring Hill, Second Vice-President; Dr. M. A. Beasley, Hampshire, Secretary-Treasurer.

Monroe County Medical Society has elected the following officers: Dr. C. S. Jenkins, Tellico Plains, President; Dr. J. A. Hardin, Sweetwater, Vice-President; Dr. B. W. Bagwell, Madisonville, Secretary.

(Continued on page 44)

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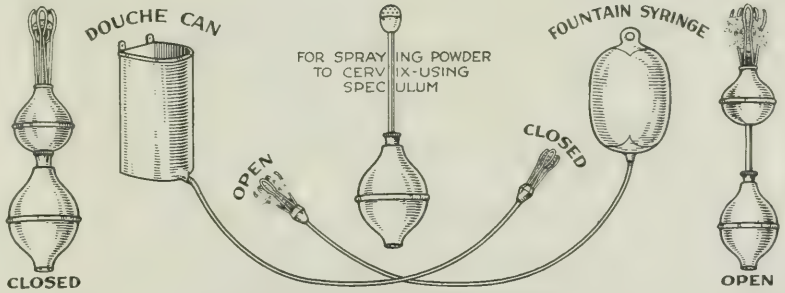

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(Continued from page 42)

Polk County Medical Society has elected the following officers: Dr. E. M. Akin, Copperhill, President; Dr. T. J. Hicks, Copperhill, Vice-President; Dr. F. O. Geisler, Isabella, Secretary-Treasurer.

Roane County Medical Society has elected the following officers: Dr. F. A. Neergaard, Harriman, President; Dr. G. E. Wilson, Rockwood, Vice-President; Dr. W. W. Hill, Harriman, Secretary-Treasurer.

Sumner County Medical Society has elected the following officers: Dr. Humphrey Bate, Castalian Springs, President; Dr. L. Miller Woodson, Gallatin, Vice-President; Dr. John R. Parker, Secretary-Treasurer.

Dr. Olin West, Nashville, has resigned as Secretary of the State Board of Health and has accepted a position as Field Secretary of the American Medical Association, with headquarters at Chicago.

Dr. Frank B. Bogart, Chattanooga, has been appointed head of the laboratory at Baroness Erlanger Hospital.

A city hospital will probably be erected at Murfreesboro by citizens of Murfreesboro and Rutherford County.

The new owners, the Board of Missions of the Southern Methodist Church, has changed the name of the Doctors' Building, Nashville, to the Lambuth Building. This is in honor of Bishop Walter Lambuth, who recently died in Japan.

Contracts have been awarded for the new Jewish Hospital to be built at Memphis at a cost of $750,000.

At a recent meeting of the Board of Directors of the Dyersburg General Hospital, Dyersburg, Drs. Charles A. Turner and John Cook were elected managers to succeed Dr. William P. Watson.

The Nashville City Hospital will soon erect a nurses' home to accommodate forty-five student nurses.

Contracts have been awarded for the erection of an institution for the feeble-minded at Nashville at a cost of $210,000.

A group meeting of the Tennessee, Arkansas and Kentucky sections of the American College of Surgeons was held in Memphis recently. Dr. E. C. Ellett, Memphis, was elected Chairman of the Executive Committee of the Tennessee Section; Dr. J. Gallagher, Nashville, was elected Secretary, and Dr. Edward Newell, Chattanooga, Councilor.

Deaths

Dr. John W. Christian, Concord, died January 20 from pneumonia.

Dr. Thomas N. Cochran, Trenton, aged 59, died January 23 from pneumonia.

Dr. William Rice Marshall, Cleveland, aged 69, died February 17 from cerebral hemorrhage.

Dr. J. H. Tripp, Tullahoma, aged 79, died February 10.

Dr. John Wilborn Baird, Henderson, aged 68, died February 10 from pneumonia.

Dr. Alonzo Wyatt McNeal, National Soldiers' Home, aged 67, died February 14 from heart disease.

Dr. James D. Norton, Maryville, aged 46, died February 5 after a lingering illness.

Dr. Stephen S. Campbell, Memphis, aged 58, died February 8.

Dr. Shelton Alvin Ramsey, Drew, aged 31, died February 5 at St. Joseph's Hospital, Memphis.

TEXAS

The annual meeting of the Texas State Medical Association will be held at El Paso, May 9-11.

At a recent meeting of the Austin District Medical Society the following officers were re-elected: Dr. A. A. Ross, Lockhart, President; Dr. Edmund Doak, Taylor, Vice-President; Dr. Morris Boerner, Austin, Secretary.

On February 14 the Angelina County Woman's Auxiliary was organized in Lufkin and the following officers elected: Mrs. A. E. Sweatland, President; Mrs. J. C. Van Nuys, First Vice-President; Mrs. C. B. Stewart, Second Vice-President; Mrs. J. W. Hawkins, Secretary-Treasurer; Mrs. Benj. F. Gibson, Publicity Secretary.

A medical unit of the 143d Infantry is being organized in Hillsboro. Officers announced for the medical unit are: Dr. J. Frank McDonald, Major, Medical Reserve Corps; Dr. J. Frank Smith, Captain, Medical Reserve Corps; Dr. I. R. McCullough, Captain, Dental Corps, all of whom saw service in the World War.

The annual meeting of the Texas Public Health Association was held in Austin on February 16. The following officers were elected: Dr. Z. T. Scott, Austin, President; Dr. Elva A. Wright, Houston, First Vice-President; Dr. J. B. McKnight, Sanatorium, Second Vice-President; J. W. Butler, Galveston, Secretary.

Angelina County Medical Society has elected the following officers: Dr. E. A. Sweatland, Lufkin, President; Dr.

(Continued on page 46)

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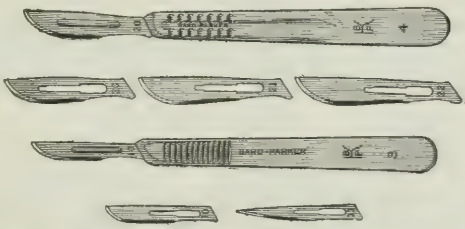

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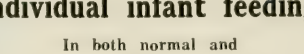

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(Continued from page 44)

E. T. Clark, Kelty's, Vice-President; Dr. Benj. F. Gibson, Lufkin, Secretary-Treasurer.

Austin County Medical Society has elected the following officers: Dr. W. T. Brown, Wallis, President; Dr. Herbert F. Roensch, Kenney, Vice-President; Dr. Otto E. Steck, Bellville, Secretary-Treasurer.

Bastrop County Medical Society has elected the following officers: Dr. W. E. Campbell, Elgin, President; Dr. P. Chapman, Smithville, Vice-President; Dr. I. J. Dawson, Bastrop, Secretary-Treasurer.

Bowie County Medical Society has elected the following officers: Dr. S. A. Collom, Texarkana, President; Dr. H. G. Wootten, Annona, First Vice-President; Dr. W. E. Womack, Redwater, Second Vice-President; Dr. C. A. Smith, Texarkana, Secretary-Treasurer.

Burleson County Medical Society has elected the following officers: Dr. G. C. McLeod, Lyons, President; Dr. B. O. McLean, Caldwell, Secretary-Treasurer.

Cameron County Medical Society has elected the following officers: Dr. C. M. Cash, San Benito, President; Dr. H. M. Nicholson, Harlingen, Vice-President; Dr. W. J. Vinsant, San Benito, Secretary-Treasurer.

Cherokee County Medical Society has elected the following officers: Dr. R. T. Travis, Jacksonville, President; Dr. W. J. Johnson, Rusk, Vice-President; Dr. Thos. H. Cobble, Rusk, Secretary-Treasurer.

Childress-Collingsworth-Donley-Hall County Medical Society has elected the following officers: Dr. C. F. Wilson, Memphis, President; Dr. W. N. Wardlaw, Childress, Vice-President; Dr. O. L. Jenkins, Clarendon, Secretary-Treasurer.

Clay County Medical Society has elected the following officers: Dr. T. K. Jones, Henrietta, President; Dr. Albert Greer, Henrietta, Vice-President; Dr. J. H. Ferriss, Henrietta, Secretary-Treasurer.

Collins County Medical Society has elected the following officers: Dr. M. S. Metz, McKinney, President; Dr. G. P. Maynard, Wylie, Vice-President; Dr. P. D. Robason, Allen, Secretary.

DeWitt County Medical Society has elected the following officers: Dr. G. W. Allen, Jr., Yorktown, President; Dr. W. W. Seale, Cuero, Vice-President; Dr. B. J. Nowierske, Yorktown, Secretary-Treasurer.

Fannin County Medical Society has elected the following officers: Dr. C. A. Gray, Bonham, President; Dr. H. A. McDaniel, Bonham, Vice-President; Dr. O. C. Nevill, Bonham, Secretary-Treasurer.

Gonzales County Medical Society has elected the following officers: Dr. W. T. Dunning, President; Dr. L. Stahl, Vice-President; Dr. W. T. Dawe, Secretary-Treasurer.

Hardeman-Cottle Medical Society has elected the following officers: Dr. R. R. McDaniel, Quanah, President; Dr. Jas. W. Conley, Quanah, Vice-President; Dr. C. B. Jones, Quanah, Secretary-Treasurer.

Harris County Medical Society has elected the following officers: Dr. E. L. Goar, President; Dr. Lyle J. Logue, Vice-President; Dr. R. M. Hargrove, Secretary-Treasurer.

Harrison County Medical Society has elected the following officers: Dr. W. E. Harrington, President; Dr. O. M. Heartsill, Vice-President; Dr. F. S. Littlejohn, Secretary-Treasurer.

Hunt County Medical Society has elected the following officers: Dr. M. L. Wilbanks, Greenville, President; Dr. L. H. Stewart, Point, Vice-President; Dr. W. B. Reeves, Greenville, Secretary.

Johnson County Medical Society has elected the following officers: Dr. L. T. Smith, Rio Vista, President; Dr. C. C.

(Continued on page 48)

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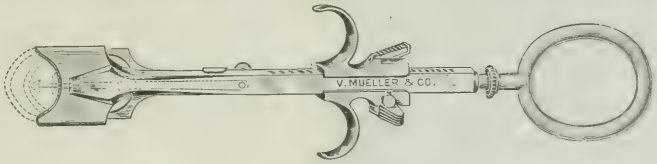

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(Continued from page 46)

Bradford, Godley, Vice-President; Dr. M. T. Knox, Cleburne, Secretary-Treasurer.

Kerr-Kendall-Gillespie-Bandera County Medical Society has elected the following officers: Dr. E. E. Palmer, Kerrville, President; Dr. J. E. McDonald, Kerrville, Vice-President; Dr. J. D. Jackson, Kerrville, Secretary-Treasurer.

Lampasas County Medical Society has elected the following officers: Dr. J. D. Dorbandt, Lampasas, President; Dr. J. G. Townsen, Secretary-Treasurer.

Madison County Medical Society has elected the following officers: Dr. James E. Morris, Madisonville, President; Dr. G. P. Day, Madisonville, Secretary.

McCulloch County Medical Society has elected the following officers: Dr. J. W. Matlock, Rochelle, President; Dr. J. G. McCall, Brady, Vice-President; Dr. J. S. Anderson, Brady, Secretary-Treasurer.

Mitchell-Nolan County Medical Society has elected the following officers: Dr. L. O. Dudgeon, Sweetwater, President; Dr. H. C. Scott, Sweetwater, Vice-President; Dr. A. H. Fortner, Sweetwater, Secretary-Treasurer.

Potter County Medical Society has elected the following officers: Dr. E. A. Johnston, President; Dr. A. H. Lindsay, Vice-President; Dr. Richard Keys, Secretary-Treasurer.

Rusk County Medical Society has elected the following officers: Dr. J. H. Spivey, Henderson, President; Dr. J. E. Watkins, Henderson, Vice-President; Dr. C. A. Dawson, Minden, Secretary-Treasurer.

Stephens County Medical Society has elected the following officers: Dr. J. W. Wharton, Breckenridge, President; Dr. W. B. Guinn, Breckenridge, Vice-President; Dr. J. E. King, Breckenridge, Secretary-Treasurer.

Upshur County Medical Society has elected the following officers: Dr. T. S. Ragland, Gilmer, President; Dr. J. M. Griffith, Big Sandy, Vice-President; Dr. H. J. Childress, Gilmer, Secretary.

Van Zandt County Medical Society has elected the following officers: Dr. Clarence R. Williams, Wills Point, President; Dr. Willard C. Hearin, Canton, Vice-President; Dr. D. Leon Sanders, Wills Point, Secretary-Treasurer.

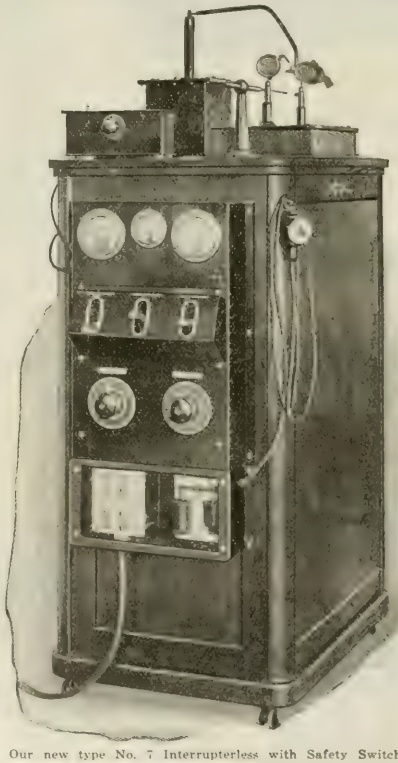
Washington County Medical Society has elected the following officers: Dr. L. Kusch, Gay Hill, President; Dr. R. E Knolle, Brenham, Vice-President; Dr. A. E. Becker, Brenham, Secretary-Treasurer.

Wilbarger County Medical Society has elected the following officers: Dr. Howard Reger, Vernon, President; Dr. J. E. Dodson, Sr., Vernon, Vice-President; Dr. R. W. Hix, Vernon, Secretary.

Wise County Medical Society has elected the following officers: Dr. J. H. Walker, Alvord, President; Dr. N. F. McDonald, Bridgeport, Vice-President; Dr. W. L. Russell, Rhome, Secretary-Treasurer.

The new hospital being erected by the International and Great Northern Hospital Association, Palestine, will soon be completed at a cost of $150,000.

(Continued on page 50)



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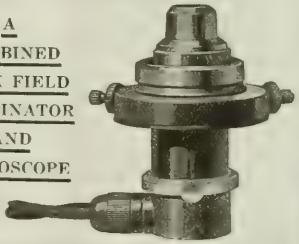

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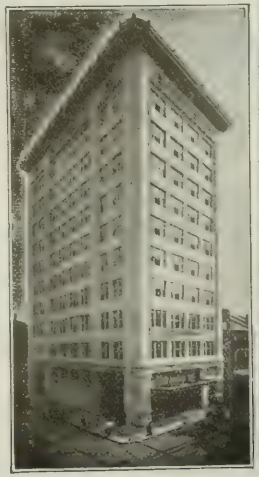

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The most valuable asset any organization can have is **the ability to do things successfully.**

The financial statement reflects the service of The Medical Protective Company.

	Assets
1921	$1,139,934
1920	909,982
1919	729,339
1918	615,651
1917	440,497
1916	365,979
1915	300,765
1914	253,520
1913	208,118
1912	172,310
1911	148,835
1910	130,237

All devoted to one line exclusively, a security to contract holders unsurpassed by any other organization.

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Abdominal Supporters and Binders

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Descriptive literature mailed upon request

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(Continued from page 18)

Dr. Jewell A. Daughety has announced that he will rebuild the Physicians' and Surgeons' Hospital, Brownwood, recently destroyed by fire.

At a recent meeting of the medical associations of Austin, Burleson, Fayette, Grimes, Waller and Washington Counties a subdistrict association was formed, and meetings will be held semi-annually.

Dr. Sterling Price Boothe, Cuero, has been appointed County Health Officer to succeed Dr. Joseph R. Frobese.

An Eye, Ear, Nose and Throat Sanitarium is being built at Hillsboro by Dr. J. E. Boyd. It will be a two-story brick structure and will have a twenty-bed capacity.

A memorial to Dr. T. T. Jackson has been established by his friends in San Antonio through the reorganization and remodeling of the former Lee Surgical Hospital. The institution will be known as "The Jackson Hospital."

Dr. Houston Neeley, Beeville, has been elected President of the Southwest Texas District Medical Society.

Dr. J. E. Daniels, Wichita Falls, has been appointed Medical Director for the Great Southern Life Insurance Company of Dallas.

Dr. George B. Cornick, San Angelo, has gone to Russia, where he will do relief work among the starving inhabitants. His work will be under the direction of the American Relief Administration.

Deaths

Dr. Charles S. Vance, Cisco, aged 74, died February 10 from acute indigestion.

Dr. William O. Langdon, Hutchins, aged 73, died January 31.

Dr. James Hector Mackay, Houston, aged 56, died in January.

Dr. J. William Tibbels, Ranger, aged 71, died November 26.

Dr. Simeon A. Pennington, Port Arthur, aged 45, died February 16 in the Mary Gates Hospital following an operation for appendicitis.

Dr. George Nixon White, Canadian, aged 71, died January 26 from pneumonia.

Dr. Howard T. Irvine, Austin, aged 38, died January 4 at Rochester, Minn., from arteriosclerosis.

Dr. Willis Harris Pope, Sr., Trinity, aged 63, died February 9.

Dr. Samuel W. Johnson, Dallas, aged 68, died January 8.

Dr. Reuben Pearce Tye, Burleson, aged 71, died February 9 after a brief illness.

VIRGINIA

The Southside Virginia Medical Association met in Suffolk March 14 with a good attendance. A full number of papers were presented, the leading subject being tuberculosis. The next meeting will be held in Norfolk the second Tuesday in June. Dr. R. L. Raiford, Sedley, is Secretary of the Association.

At the recent meeting of the Richmond Tuberculosis Association Dr. Garnett Nelson was re-elected President and the following, in addition to Dr. Nelson, were made directors: Drs. P. D. Lipscomb, N. T. Ennett, C. C. Hudson and E. C. L. Miller.

The new tuberculosis sanitarium, Danville, will open soon. The Danville Masonic lodges will fully equip one of the rooms of the sanitarium.

Northampton County Medical Society has elected the following officers: Dr. Holland Trower, Eastville, President; Dr. G. Fred Floyd, Bridgetown, Vice-President; Dr. J. Mortimer Lynch, Cape Charles, Secretary-Treasurer.

Lunenburg County Medical Society has elected the following officers: Dr. Edwin Mann, Kenbridge, President; Dr. H. E. Whaley, Victoria, Vice-President; Dr. Robert Whitehead, Meherrin, Secretary-Treasurer.

Dr. James Morrison has been elected President of the Lynchburg Chapter of the University of Virginia Alumni.

The Johnston-Willis Sanatorium property has been sold to the Foreign Mission Board of the Southern Baptist Convention for $100,000. Possession will not be given for two years. In the meantime Dr. Murat Willis and the physicians associated with him will erect a modern and fire-proof hospital at Kensington Avenue and the Boulevard, facing the Confederate Battle Abbey.

Dr. J. W. Holmes, Pulaski, has been elected Chaplain of the Pulaski County Camp of Confederate Veterans.

Dr. H. Taylor Hawkins, Clover, has been made commander of Clover Post No. 110 of the American Legion.

Dr. George P. Hamner, Lynchburg, has been elected President of the Piedmont Field and Stream Club.

Dr. J. McCaw Tompkins has been elected a member of the Board of Directors and Dr. Dorsey G. Tyler, Lion Tamer of the Lions' Club, which was recently organized in Rich-

(Continued on page 52)

Nervous Conditions

are invariably aggravated by the irritation that essentially accrues from the repeated impacts of leather heels on hard, unyielding floors and surfaces. Happily it is easy to obviate this continual pounding, with its cumulative depressing effects on the nervous system, by wearing

O'Sullivan's Heels

So pronounced are the resulting benefits, that the use of O'Sullivan's Heels has become with many physicians a fundamental detail in the care of the nervous patient. The relief of jarring not only adds much to the patient's comfort and well-being, but the marked relaxation of nerve-tension that follows often proves an important factor in assuring a prompt and satisfactory recovery. O'Sullivan's Heels are a boon to the neurasthenic patient.

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Constipation in infancy is a symptom that should not be passed over lightly, for deferred elimination of the waste products of digestion, especially if allowed to become chronic, may lead to digestive disorders difficult to correct. Loss of appetite, disturbed sleep, a slow gain in weight and a generally uncomfortable baby are some of the early signs that are likely to be observed, as well as a change in the consistency of the infant's previously normal stool.

The Mellin's Food Method of Milk Modification

offers a very good opportunity to accomplish much toward the relief of infantile constipation, for by the employment of this method the physician may study the effect of different food elements upon the individual infant and draw a satisfactory conclusion as to the real cause of delayed bowel movements. In the chapter on "Stools" in our book, "Formulas for Infant Feeding," and in a pamphlet devoted particularly to this subject, practical suggestions are made that will be found of material assistance, and this literature will be sent to any physician upon request.

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THE ACTIVE PRINCIPLE OF SANDALWOOD OIL
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(Continued from page 50)

mond. Mr. G. H. Winfrey, Secretary of the Medical Society of Virginia, was elected Secretary.

Dr. Frank S. Johns has been elected President of the Richmond Alumni of the Kappa Alpha Fraternity.

Dr. Edgar A. Pole, Hot Springs, and Mrs. Alice Clarke, Charlottesville, were married in January.

Deaths

Dr. Floyd J. Gregory, Jr., Keysville, aged 46, died January 20 from pneumonia.

Dr. Edmund Lee Tompkins, Fine Creek Mills, aged 59, died recently.

Dr. Rufus Humphrey, Bluemont, aged 68, died January 10 after a lingering illness.

Dr. John C. Anderson, Greenpond, aged 70, died November 25 from carcinoma of the prostate.

Dr. Alexander Reynolds, Graham, aged 91, died January 21.

Dr. George Roberts, Alexandria, aged 75, died February 1 from senility.

Dr. Charles Mason Thomas, Healing Springs, aged 54, died February 17 from empyema.

Dr. Wyatt Reid Arnold, Bedford, aged 56, died January 21 at the Lewis-Gale Hospital, Roanoke, from tuberculosis.

Dr. Andrew C. Fisher, Emmerton, died February 7 from pneumonia.

WEST VIRGINIA

The annual meeting of the West Virginia State Medical Association will be held in Huntington May 17-19.

Marion County Medical Society has elected the following officers: Dr. J. A. Reidy, Monongah, President; Dr. E. W. Strickler, Fairmont, Vice-President; Dr. Luther Davis, Fairmont, Secretary; Dr. C. W. Waddell, Fairmont, Treasurer.

Barbour-Randolph-Tucker County Medical Society has elected the following officers: Dr. George L. Pierce, President; Dr. J. C. Irons, Secretary-Treasurer.

Mercer County Medical Society has elected the following officers: Dr. H. C. Hays, Princeton, President; Dr. R. O. Rogers, Bluefield, Vice-President; Dr. H. G. Steele, Bluefield, Secretary; Dr. C. T. St. Clair, Bluefield, Treasurer.

The Eastern Panhandle Medical Society has elected the following officers: Dr. G. J. E. Sponseller, President; Dr. D. P. Fry, Vice-President; Dr. G. F. Morrison, Secretary-Treasurer.

The Raleigh County Medical Society has elected the following officers: Dr. B. W. Eakin, Tams, President; Dr. U. G. Cook, Beckley, Vice-President; Dr. J. H. Hoskins, Beckley, Vice-President; Dr. Chas. S. Smith, Beckley, Secretary.

Dr. T. K. Oates has erected a three-story building at Martinsburg for the purpose of organizing a group.

The King's Daughters' Hospital, Beckley, was opened January 24. Dr. B. B. Wheeler, former Surgeon of McKendree Hospital, McKendree, is Surgeon and Chief of the Staff.

The Rotary Club, Martinsburg, has furnished a ward at the King's Daughters' Hospital for the purpose of doing orthopedic work on the poor children.

Dr. M. G. Hoffman, Bunker Hill, and Miss Ruth Knott were married December 17.

Deaths

Dr. R. H. Bullard, Wheeling, died January 11.

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MORE people die from pneumonia than any other disease.

Approximately 25 out of every 100 cases end fatally. Dr. Gustav Goldman has demonstrated that at least twenty of these twenty-five deaths may be prevented by employing Bacterial Vaccines. Why delay and chance a fatal termination?

Dr. Gustav Goldman's article appeared in American Medicine, March, 1921

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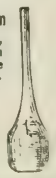
Sodium Cacodylate, Mercury Biniodide, Mercury Salicylate, Iron Citrate, Iron Citrate and Sodium Arsenate, Emetine Hydrochloride, Fisher's Solution (concentrated), Gray Oil, Novocain and 80 other formulae.



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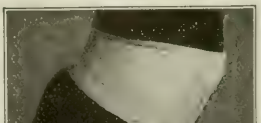

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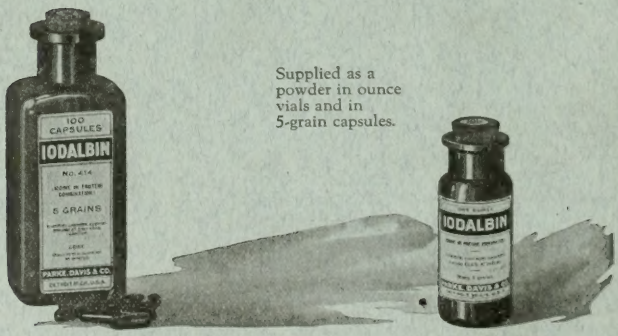

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